

VOLUME III

NUMBER 2

MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association

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FEBRUARY, 1920

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Owned and Published Monthly by

THE MINNESOTA STATE MEDICAL ASSOCIATION

BUSINESS MANAGER

J. R. BRUCE, 403 Central Bank Bldg., Saint Paul

Telephone: N.W. Cedar 1683

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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association

Vol. III

FEBRUARY, 1920

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ORIGINAL ARTICLES

THE CLINICIAN AND RESEARCH*

BY W. W. HERRICK, M. D.,
New York City.

When a clinician whose largest task is the practice of medicine speaks of research he immediately feels somewhat on the defensive. Research has perhaps become a perquisite of the special laboratory worker,—a sort of esoteric performance to be conducted within the cloistered walls of an institution, into which the human problems of the ordinary work of the practitioner seldom enter. This is in a measure as it should be, since much of modern research in the sciences related to medicine has demanded just this isolation. It is true also that the ordinary practitioner, little to his credit, has small training and small interest in research; that he is absorbed in performance and not in theory, and that economic demands have too often stifled any nascent productive endeavor.

Pasteur described two kinds of men: the first, the scientist, who approaches nature with an open mind and a clear field and who, by experiment, observation and reasoning seeks to unmask her secrets: the second, the man of sentiment, whose instruments are instinct, emotion, faith and hope. Pasteur remarks that woe is to the man who thinks to mingle these diverse characteristics. Perhaps the difficulty the physician meets in research is that he must go counter to Pasteur's warning. He cannot approach the sick man in a purely scientific attitude; he cannot think of him as a mere test tube. He must take account of his own and the patient's hope and faith. At the same time he must keep the open mind, and while not blind to the qualities of Pasteur's second type of

man, must solve clinical problems chiefly by experiment, observation and reason.

We are perhaps prone to forget the research work of the great clinicians of the past—of Pierre Louis, of John Hunter, of Beaumont, the elder Flint and others,—men who with little equipment except that of the general practitioner, blazed paths into unexplored regions that have been perpetual guidance to those who follow.

The state of clinical research seems to me comparable to that of the New England soil that gave sustenance to the hardy race of pioneers who left their mark on the entire world,—a soil that, with the settling of the richer regions westward was largely abandoned, but that now, under the pressure of population, is responding to intensive, scientific method and again bids fair to be productive. So clinicians as pioneers differentiated by painstaking observation the various forms of disease and laid the foundations of pathology. With the development of physiology, chemistry, bacteriology and immunology much of the research and most of the advance in knowledge was the result of work in pure science—a product of the laboratory—a virgin, fertile field, the end of whose resources is not yet. The clinician, rather pushed aside by all the latter development of laboratory method,—often, it must be confessed, somewhat bewildered by it—is now coming back to the fields he formerly tilled. Adopting the methods of his laboratory co-worker, he is applying them to his tasks and is correlating laboratory achievement with his own keen senses, his own practical judgment, and applying the resultant to the problems of the bedside, demanding as a right that all shall contribute to the needs of the patient. Armed with new weapons he may feel a new power over disease and in hearty co-operation with the chemist, the bacteriologist, and pathologist look forward with high hopes.

*Portion of an address delivered before the Minnesota State Medical Meeting in Minneapolis, Oct. 1919.

The greatest medical progress will result from this application of carefully chosen laboratory methods to the work of the practitioner, from a combination of the art, as expressed in a highly developed system of physical diagnosis, and the science in the form of precise laboratory technique. It would seem that the more immediate results in this endeavor are promised the general practitioner, in a study of the infections. For him this is almost a clear field. The family physician alone has opportunity to observe infectious processes from beginning to end. However, to achieve the greatest progress in their study he must divest himself of certain traditions.

Are not our conceptions of many diseases—perhaps of most diseases—based upon necropsy demonstration of end effects? We have visualized terminal anatomical variations from the normal and placed the label of a disease entity upon them. How often we forget all that has preceded and led up to this end result: the carrier period, the stage of incubation, the period during which the final anatomical changes are evolving. Have we paid due attention to the earlier phases? Are we not prone to conceive of disease as a fixed entity rather than the fluid thing it is, ever changing like the vital processes upon which it plays? Are we doctors not too much afraid to change our minds, to reverse our opinion, to tell the family it is something else? Do we not wait for late or terminal results in their anatomical-pathological expression before venturing a diagnosis and instituting treatment? Is it not time to shake off this stereotyped conception of acute disease as recognizable only in its late stages and, by turning attention to the earlier features of infections, to diagnosticate them earlier than we do?

One may ask, "Well, what difference does it make?" Little, perhaps in many infections, but how much in diphtheria, in meningitis, in Type 1 pneumonia, in tetanus? There is no need to quote well known statistics in support of this. Are we to believe that it will be long before research furnishes us effective weapons against other acute diseases?

It may be objected that acute infections are less important than formerly—that small pox, diphtheria and scarlet fever have lost much of

their old time terror—that problems of perverted chemistry and physiology are more worthy of our attentive study. The reply of the civilian physician who was so fortunate as to serve in the Medical Reserve Corps during the past two years in an active mobilization center will not be in accord with this view. One who has cared for hundreds and even thousands of those stricken with acute disease will tell you of a very real appreciation of the importance of the commoner acute infections, and of a realization that, great as are the weapons against diphtheria, tetanus and meningococcal infection, we are as yet helpless before most types of pneumonia, of sepsis and the virulent exanthemata.

The problem to which the physician may apply himself with greatest profit is that of the early stages of the acute infection. It is the family doctor, not the hospital physician or the consultant before whom the inaugural symptoms of pneumonia, meningitis, tuberculosis and sepsis are exhibited and often in a remediable stage. Cannot our senses be trained so that, in co-operation with the laboratory, diagnosis can be made or at least approximated before the full textbook picture is drawn and valuable time lost? I believe they can and that here is the opportunity of the practitioner.

Let the family doctor be keenly alert for the initial symptoms of infections. Let him carefully record them and make use of the data collected. For the germ of an idea of systematic clinical research on a large scale, I am indebted to my friend, Dr. Grosh, of Toledo.

A central Committee on Clinical Research might be established, preferably under the auspices of the American Medical Association. Subjects for investigation could be assigned by this committee to Research Committees of state medical societies. The state societies might assign to county or local medical societies the subjects chosen for study with suitable instructions, blanks, outlines and reprints to serve as norms. For example, the subject, "Pneumonia" might be assigned a given state. For different phases of the problem, counties might be made responsible. Such points as the following could be studied: The percentage of cases showing antecedent coryzas, laryngitis, tonsillitis or other mild infective processes, the percentage

without such recognizable prodromata; the earliest features, as the period at which the respiration or pulse become accelerated, when cough begins, when rusty sputum, the average number of days of fever before the signs of consolidation appear, the variation in symptoms according to the type of pneumococcus concerned, the effect of therapeutic measures, and other similar problems. The data thus collected could be sent to a central point for collation and statistical evaluation, each contributor being given credit for his share. In carrying out this plan no great burden would be put upon any one practitioner, but interest in cases would be heightened, new avenues of intellectual endeavor would open, and once in a generation a master mind might be unearthed who, without the stimulus of a share in a common fund of research, would have continued to tread an uninspired, unproductive round.

The patent objection comes at once to the fore. The general practitioner is not so trained in observation that his findings have scientific value. He has not the technical facilities at his command to develop the important laboratory side of the early stages of the infections. It must be remembered that men better trained in physical diagnosis and in laboratory methods are constantly implanted in smaller communities, and that laboratories are becoming more widely dispersed each year; also that the regional medical schools could with mutual profit co-operate in the movement suggested.

Would such a mass of observation collected from the common run practitioner have value? I believe it would. The practitioner, even of the old type, is no mean observer; given a little direction and guidance many will prove truly productive.

Experience in the Medical Corps of the Army revealed an astonishing lack of skill in physical diagnosis. This defect in training was often prominent in graduates from medical schools of the highest class in whom there frequently tended to be a slavish dependence upon the laboratory for evidence that the independent use of better trained senses would have made plain. Neither physical diagnostic nor laboratory methods can profitably be emphasized at the expense of the other. Both are essential, but if clinical research and clinical medicine are to

advance, the well tried methods of the older clinicians must take their place, at least as equals, with the more technical and special, and often less relevant developments of the laboratory.

Diagnostic courage controlled by knowledge, judgment, skill and experience is perhaps rare. Most of us naturally like to have all the evidence in, to wait until the terminal pathology develops before committing ourselves. We dislike to change our diagnosis. We like to appear to be always right.

If we are to succeed in recognizing infections in their earlier phases, it is possible that this traditional attitude of diagnostic conservatism will have to be modified and that, until the profession at large and the public know our purpose, it will be necessary to abandon somewhat of our not too great appearance of infallibility. The object should be not alone to recognize the clinical picture upon which the label of a disease entity has been placed, but to recognize the carrier stages, the portal of entry, the inaugural symptoms and the species and type of invading organism before profound changes in bodily structure or function have taken place, and when the real therapeutic profit of early diagnosis may be gathered. This object can be attained only by the general practitioner and only by the collection of a mass of clinical data which shall revise or create a picture of the inaugural features of the infections that are on the whole too little regarded.

EPIDEMIC LETHARGIC ENCEPHALITIS

By C. EUGENE RIGGS, M. D.,

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St. Paul, Minn.

In 1917, Von Economo of Vienna, reported 13 cases in which the patient manifested somnolence not unlike that observed in sleeping sickness. Frequently after a variable period—from two weeks to even months—death occurred. To this disease he gave the name Lethargic Encephalitis and he believed the symptoms to be due to a living virus similar to, but not identical with, poliomyelitis. There is, as Bassoe^{*} has pointed out, a triad of symptoms, somnolence, irregular

^{*}Read before the Ramsey County Medical Society, St. Paul, Nov. 24, 1919.

temperature and cranial nerve involvements, common to a dozen different brain affections, which may so closely simulate epidemic encephalitis as to make the differential diagnosis a matter of real difficulty.

There have occurred at least five epidemics of this disease which have been usually associated with pan-epidemics of influenza. The encephalitis may occur during or as most commonly happens sequential to influenzal attacks. Smithies² has reported one; Brasher, Caldwell and Combe³ two, and Alexander⁴ five, cases of encephalitis developing during the influenzal illness. It is the consensus of opinion that there is no other infectious agent so inimical to the nervous system as that of influenza. According to Starr, there is no part of the nervous system or its coverings that is exempt from its ravages. Abrahamson has properly emphasized the protean neurological symptoms which characterized the epidemic of last year. They were likewise present in the first great epidemic twenty years ago, although they were less marked in this country than abroad. Abrahamson prefers the name epidemic polioencephalitis because nuclear involvement dominates the pathological picture and also because lethargy is not an invariable symptom. The term lethargic encephalitis is ill advised, says Wilson, because it is not the encephalitis but the patient suffering from it that is *lethargic*. Sachs emphasizes the resemblance between epidemic encephalitis and the post-diphtheritic palsies both as a rule developing after the initial infection. No definite proof of the nature of the virus has yet been found. Weyeforth and Ayer⁵ state that they neither saw organisms nor were they able to grow them from the spinal fluid or from the nervous system; postmortem inoculation was likewise a failure. Marinesco observed two types of organisms on his slides. Caldwell found in both of their cases a minute gram positive coccus identical to that found by Wilson in influenza, which they (Brasher, Caldwell and Combe) regarded as the probable cause of encephalitis lethargica. Wilson⁶ believes that Von Weisner's diplo-streptococcus cannot be accepted as the specific cause of the disease especially if one considers the negative bacteriological findings in his two fatal cases. The researches of Loewe and Strauss⁷ indicate the presence of an organism similar to that described by Flexner and Noguchi in polio-myelitis. It ap-

pears as small globular purple-bluish bodies-- singly, in diplo forms, chains or clumps, which are found in the nasopharyngeal mucus membrane of patients afflicted with this disease. They have succeeded by inoculation of monkeys and rabbits with this filtrable virus in developing clinically and pathologically the picture of this affection. It is an infectious encephalitis, the habitat of the infecting agent being the nasopharynx from which it passes by the lymph channels to the vessels of the base of the brain, involving the brain stem, ganglia and cortex; also the upper cord, meninges and nerves. Abrahamson⁸, chairman of the Committee on Epidemic Polioencephalitis in his report states that it has been established pathologically and experimentally that lethargic encephalitis is a distinct disease—a condition, *sui generis*, and one which until recently has escaped recognition and differentiation.

The following case will better enable us to understand the symptomatology of the disease. Mrs. A. age 44, was referred to me by Dr. H. C. Cooney of Princeton, Minnesota. As a girl her health was excellent; married at 21; two children both well; two miscarriages. Last January she suffered a nervous breakdown but made a good recovery. She had an attack of influenza last July from which she never fully recovered. She did not regain her strength and since has been somewhat depressed; felt as if life was not worth living and has been very nervous; appetite fair but sleep poor. For several weeks past she stated that it seemed as if bells were ringing in her head. She has also experienced a sensation of numbness in her hands. She did not complain of headache although she suffered from it to a slight degree before coming to the hospital. There was no vertigo but she had complained for several days of double vision. When admitted to the hospital, October 17th, 1919, there was marked asthenia, a temperature of 100.4°; pulse 100; respiration 26; tongue heavily coated; there was a typical Parkinson face; mentally she was bright and active. It was the time of her menstrual period and the discharge was most offensive. Her haemoglobin was 76 per cent; red blood cells, 4,364,800; white blood cells 9,260; blood pressure 145 systolic; 98 diastolic; urine normal. The neurological examination

was negative. Her condition remained practically unchanged for 36 hours; then a marked change was noticeable; her face was anxious; eyes sunken and she became very lethargic; would answer questions and indicate her wants. Because of the passage of clots and the character of the menstrual flow, I had Dr. George Earl see the patient. His findings were negative; the lethargy deepened; the patient lay with her eyes closed as in slumber. She would arouse herself sufficiently to ask for water, but would answer no questions. She was still able to take liquid nourishment if fed by a spoon. At this time there was a very marked rigidity of all the four extremities and also of the neck muscles; there were, however, no choreiform movements or tremor of the hands and legs. Both superficial and deep reflexes were absent but this evidently was due to the rigidity; no Babinski was present; sensation as usual in these cases was unaffected. Lumbar puncture showed a normal pressure and a clear fluid. The Wassermann and Goldsol reactions were negative; no increase of cells; no globulin excess. The pulse ranged from 160 to 180; respiration from 50 to 60 and very shallow; temperature from 102° to 106°; there was a profuse perspiration and at times there was a marked cyanosis. The stiffness of the neck muscles was evidently due to their rigidity. Meningeal symptoms develop less frequently in encephalitis than poliomyelitis. Delusions and hallucinations, as in any toxic psychosis, may occur. The patient was cataleptic and her condition for a time was very suggestive of catatonic stupor. For twelve hours preceding death which was evidently due to failure of the cardiorespiratory system, the patient was practically pulseless; autopsy was refused. The duration of the disease is indefinite, varying from a few days to weeks or months.

There is a belief, all too common in our profession, that encephalitis is a rare disease. The fact is that it is of frequent occurrence. Over 25 years ago I had under my care at the City Hospital a young woman in her early twenties who apparently was suffering from a grave chorea. There was no mental disturbance or cranial nerve involvement. The choreic twitchings were so violent as to throw her out of bed. Mattresses were placed on the floor and against

the wall to prevent her from injuring herself. Death occurred within a week. Autopsy revealed small punctate hemorrhages distributed through the cortex, basal ganglia and white matter of the brain.

Usually delusions, terrifying hallucinations and many times a wild delirium completes the distressing picture. Encephalitis occasionally complicates typhoid fever and only too well do we know that it is a common and fatal ending in cases of head injuries. How frequently do we see in our consultation rooms young children, mentally defective, who suffer from epileptiform convulsions and in whom one or more limbs are both paretic and spastic, the diagnosis at the time of the acute illness being teething or gastritis. This acute hemorrhagic encephalitis of childhood was recognized by Strumpell many years ago, who regarded it as an infectious disease. Buzzard⁷ believes that the virus of Poliomyelitis is the infectious agent. Lethargic encephalitis is still another type of brain infection due to a specific virus.

Obsessed with the idea of a streptococcal infection, I for the moment overlooked the significance of the temperature, the Parkinson face, the diplopia and the previous influenzal attack, which the appearance of the lethargy made clearly apparent. This is present in 80 per cent of the cases. Lethargy and cranial nerve involvement are the most common symptoms, ophthalmoplegia being observed in 75 per cent of the English cases. The usual symptoms of a common cold together with lethargy and asthenia without the cranial nerves being affected may be the only symptoms. Epileptiform attacks have been observed but their occurrence is very rare. The temperature may vary little from the normal. There may be a moderate rise either at the beginning or during the progress of the illness; it also may be irregular or it may drop before exitus. Pain and stiffness in the neck may occur along with the Kernig sign. Rarely, if ever, are the clinical symptoms a replica of an acute Meningitis. (Wilson). Three months after its onset, certain manifestations of the disease have been observed.

Epidemic encephalitis occurs at all ages and affects both sexes about equally, infants, children and adults alike being attacked. The

seasonal incidence of this disease—Spring and Winter—is an aid to diagnosis. Its infectious character must be constantly kept in mind. Schnorr¹ reports a case of a physician who developed symptoms four days after his first visit to an encephalitic patient. The incubation in this instance was over three weeks; it may, however, be only a few days; the onset is gradual; exceptionally sudden. Lethargy may be replaced by extreme restlessness. The patient's response to questions during the lethargic state is notably lucid and accurate. The stuporous condition is variable, duration ranging from a few days to several weeks. In a suspected case at Camp Custer, it lasted 47 days (Schnorr). Buzzard tells us that patients over 40 or even 50 years of age may develop encephalitis manifesting such symptoms as hemiplegia, hemianaesthesia, aphasia or hemianopsia, and not a little difficulty may arise in differentiating between it and cerebral tumor, brain abscess, cerebral hemorrhage and thrombosis. In his patients there were no cardiovascular changes to suggest the possibility of a cerebral hemorrhage. While the above symptoms indicate the involvement of the brain cortex, nystagmus, diplopia and ophthalmoplegia suggest the brain stem as being the point of attack.

There is another class of cases manifesting the same constitutional symptoms but giving us a very different clinical picture, viz: the mask-like face, the rigid limbs, the tremor, the posture, the gait of paralysis agitans, the basal ganglia in this instance being the chief point of attack. Abrahamson has reported two cases and Tilney one of the latter type. Epidemics of stupor in childhood² have occurred in England and France. Netter's belief that the Paris outbreak was due to epidemic encephalitis furnishes the most reasonable explanation of the English cases. The epidemic of toxic ophthalmoplegia described by Hall³ and that of acute infections ophthalmoplegia reported by Harris⁴ are without doubt manifestations of this infectious disease. Bilateral facial involvement as a post-influenzal condition Dr. Timme⁵ believes to be rare. In Plattsburg he saw three cases who had had influenza overseas, after reaching camp, they became similarly affected, first one side of the face then, within a week, the other

side being involved. I have seen one case of bilateral facial involvement following an attack of influenza. It developed within twenty-four hours and there was marked disturbance of speech. The patient was exceedingly nervous, very irritable and his mental symptoms were those of hypomania. The facial palsy, speech disturbance and mental symptoms gradually disappeared.

A good illustration of deranged hypophyseal function is seen in the case of Miss B.—age 22, referred to me by Dr. Bigelow of Brandon, Manitoba. She had an attack of influenza, March 1919. Two months later she manifested the symptoms of a cold without fever. She was mentally confused, could not remember names. When asked to do one thing, she would do something entirely different. Twenty-four hours later, while assisting her mother in the kitchen, she suddenly tore off her apron, rushed into the dining-room, attempted to pull down the hanging lamp, and tried to pull down the curtain from the window. She was acutely disturbed all night, talked foolishly and incoherently. This excitement soon passed away, after which she shunned the family and stayed by herself as much as possible. During this period, she took on flesh rapidly. She became misshapen and coarse of feature; the flesh hung in rolls over the abdomen; there was also an enlargement of both hands and feet; the skin peeled off of these and her hair came out by the handful. This condition lasted during July and August. A month ago, she began to talk to herself and had laughing spells; this was of short duration. At present she is irritable, nervous and emotional; she is very slow in dressing herself. Her sleep is good; appetite excellent; menses regular; flow profuse. Her weight at the beginning of her illness was 118 pounds; now 137 pounds; she was not weighed at the time she was most fleshy. Blood pressure 130 systolic; 85 diastolic; haemoglobin 85 per cent; red blood cells 4,410,000; white blood cells 10,000. Under the use of Pituitary Extract given by Dr. Bigelow, these symptoms gradually disappeared.

Tucker,⁶ in speaking of these post-influenzal conditions says: "They are probably cases of Encephalitis of more or less severity—sine lethargica."

The deviation from the normal in the blood and spinal fluid is slight. The leucocyte count in my case varied from 9,200 to 11,260; it may reach 15,000 (Neal). As is usual in these cases, the blood culture was sterile. The spinal fluid may be normal or it may show a moderate increase in cells, small lymphocytes predominating, with an excess of globulin and albumin. The goldsol reaction resembles that of poliomyelitis; it has been aptly termed freakish. The reduction in Fehlings is normal. There is a notable contrast between the blood and spinal fluid findings in poliomyelitis and encephalitis. The Rockefeller Institute has reported a leucocytosis varying from 15,000 to 30,000 in the former. Neal states in the spinal fluid the cell count may vary from 150 to 200 in encephalitis. In poliomyelitis it may exceed 1,000 per c.m.m. Although the blood and spinal fluid afford no positive proof in support of a diagnosis of encephalitis, yet their examination materially aids in the exclusion of many obscure cerebral disorders". According to Wilson, the macroscopic changes on the cranial surface are slight. There is meningeal congestion, with patches of localized meningitis and limited areas of subpial hemorrhagic effusion; also both gray and white matter are the seat of minute hemorrhages scattered irregularly, diffuse and of variable distribution. Other observers report hemorrhages few in number, very small and insignificant, while still others believe them to be agonal and of rare occurrence. The walls of the small vessels are infiltrated with lymphocytes and plasma cells. There are also foci of interstitial and parenchymatous infiltration with round cells. The lesions observed in the nerve cells are usually less extensive than in poliomyelitis and there is less neurophagia. There are also to be seen foci of perivascular hemorrhages". The prognosis depends largely on the site of the lesion; the death rate in the French epidemic was 50 per cent, due to involvement of the bulbar centers. Weyeforth & Ayer report a mortality of 44 per cent. Hall reports 16 cases with no deaths; James states that the mortality varies between 15.8 to 20 per cent. Wilson lost two out of thirteen cases. McNally collected 168 cases with 37 deaths. While complete recovery is the rule, yet there are unfortunate instances in which the patient

is left with an impaired mentality, with permanent cranial palsies, with paralyzes of spinal origin and athetosis (British Report). In England, lethargic encephalitis is a notifiable disease. The same precautions should be observed as in an epidemic of poliomyelitis.

In October, 1918, a Committee of the Royal Medical Society of which Dr. Osler was a member, reported that in their study of lethargic encephalitis they did not get any picture resembling poliomyelitis and that it differed from all such analogous conditions. Putting aside clinical and pathological differences, says Buzard, the epidemiological data are quite sufficient to prove that it is a distinct disease. The weight of evidence at present, Wilson believes, indicates that it is not identical with that affection. Neal is in accord with this view although the causative agent in the two diseases, she thinks may be closely allied.

The relation between lethargic encephalitis and influenza yet awaits positive proof. None of Schnorr's three patients had experienced a preceding attack of influenza. Abrahamson" can see no relation between the two diseases. On the other hand, in the cases of Bassoe and Neal and in the majority of those seen by Sachs there would appear to have been a more or less direct association with influenza. Attention has also been called to the fact that sufficient time has elapsed since the last epidemic twenty years ago for either disease to have appeared by itself if there were no direct relation between them.

Not knowing the nature of the infection, therapy must necessarily be unsatisfactory. Changes for the better, according to Netter, may set in abruptly, and he has observed recovery in grave cases associated with bed sores on the sacrum and elsewhere. Good nursing and free alimentation, using the nasal tube if occasion requires, are perhaps the most important measures. For the control of the choreiform movements and the tremor Bassoe advises scopolamine hydrobromide. Lumbar puncture should always be resorted to as an aid in diagnosis. If there is increased pressure of the spinal fluid, daily withdrawal is indicated. The therapeutic value of lumbar puncture is yet to be determined.

THE TREATMENT OF URETHRAL CARUNCLE*

By J. L. CRENSHAW, M. D.,
Section on Urology, Mayo Clinic
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The varied and often unsatisfactory treatment of urethral caruncles and the high percentage of recurrence after their removal led us to study these growths and the best methods of removing them.

A review of the histories of patients with urethral caruncle who have been referred for examination to the cystoscopic department of the Mayo Clinic during the past four years (April 29, 1915 to June 1, 1919) showed that the symptoms most frequently complained of were urinary frequency, pain and burning on urination, soreness around the meatus, tenesmus, and bleeding. A few patients had no symptoms referable to the caruncle. Cystoscopy was done on all patients with a history of urinary trouble; the findings were usually negative. The nervousness which is a symptom in most of these cases is unquestionable due, in many instances, to the constant irritation in the urethra, since it disappears as soon as the caruncle is removed. In other cases, the nervous symptoms are independent of the caruncle since they persist after its removal. In many instances the inconvenience and suffering seem so out of proportion to the size of the caruncle, that it is often overlooked as the cause of the trouble.

The cases of urethral caruncle observed at the clinic make it possible to draw but one definite conclusion with regard to the etiology. Urethral caruncles seem to be secondary to a chronic irritation or ulceration of the urethral mucosa. Some observers have attributed caruncles to the gonorrheal type of chronic urethritis following directly on gonorrheal ulcerations. The bursting of retention cysts of Skene's glands has also been considered a cause (Englisch). It is probable that chronic irritation from many different causes plays a part in their formation.

Pathologically, urethral caruncles are of papillomatous outline with either a broad or narrow base growing from the posterior or lateral walls of the urethra just inside the



Fig. 1. Exposure of urethral meatus showing urethral caruncle with a single mass on the posterior wall.

meatus. I have found only one case of caruncle on the anterior wall reported in the literature (Neuberger). These growths vary in color from yellowish gray to bright red. Often acute inflammation of the anterior portion of the urethra and tissues surrounding the meatus renders the whole area exquisitely sensitive. Grossly, differential diagnosis of urethral caruncle and hemorrhoidal growths, urethral cysts, fibromas, prolapse of the urethral mucosa, and malignant growths is often difficult; the microscopic findings, however, are characteristic, showing them to be of a uniform structure, composed of loose connective tissue permeated by numerous blood vessels which are often much dilated. The growth throughout shows marked inflammation, and is infiltrated with mononuclear and polynuclear leukocytes. Many plasma cells are found, especially surrounding the blood vessels. Toward the free surface the blood vessels are newly formed. The growth is covered by the

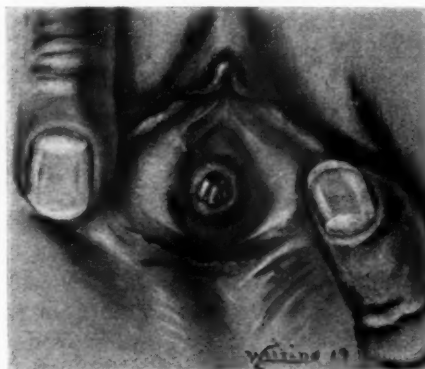


Fig. 2. Exposure of urethral meatus showing urethral caruncle with posterior and lateral masses.

*Presented before the Southern Minnesota Surgical Association, June, 1919, Rochester.

usual urethral epithelial layer which in areas is thinned out or absent, leaving an easily bleeding ulcer. Virchow speaks of the normal folds of the urethral meatus as caruncles, designating what we know as caruncles by the term "vascular polyps."

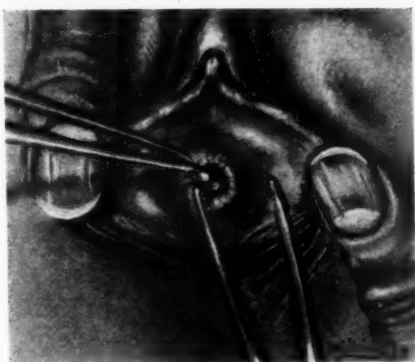


Fig. 3. Operative technic. Caruncle raised with pick-up forceps and ready to be seized by clamp.

Some authors have reported a malignant incidence as high as 25 per cent in the original caruncle and many malignant recurrences¹⁰. We have not seen a case of malignant recurrence, probably because of the fact that by our method the tissue removed is saved for microscopic examination, and early radical operation is done in all cases in which microscopic section has demonstrated malignancy in the original growth which grossly could not be distinguished from the usual benign caruncle.

In reviewing the literature on urethral caruncle, I find that the removal of these growths has been advised by such methods as excision,

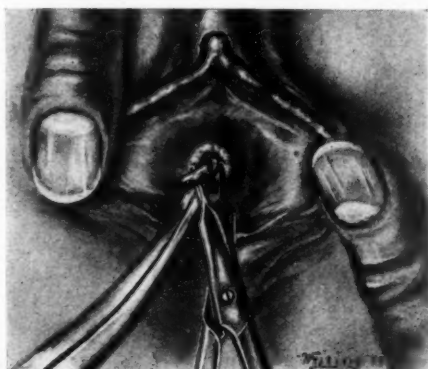


Fig. 4. Operative technic. Caruncle seized in clamp and about to be severed with scissors.

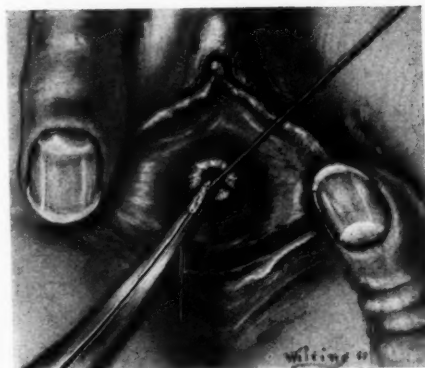


Fig. 5. Operative technic. Cauterization of stump before removing clamp.

actual cautery, various caustic acids, and high frequency current^{1,3,4,6,7,9}. Most articles record the fact that a recurrence is frequent and with it a recurrence of the original symptoms.

Recurrences have been divided, on the basis of our experience, into two classifications: First, true recurrence of the caruncle due to incomplete removal of the base, and second, prolapse of the mucous membrane of the urethra due to the contraction of the scar following the removal of the original caruncle. The majority of so-called recurrences belong to the prolapse group; they involve a portion or all of the circumference of the urethra proportionate to the extent of the original scar. A removal of this prolapse by any method merely results in a larger scar and in a repetition of the prolapse. We have seen several cases following removal of a caruncle and subsequently repeated removals of prolapsed mucosa in which the mucosa of the trigone was dragged down into the urethra

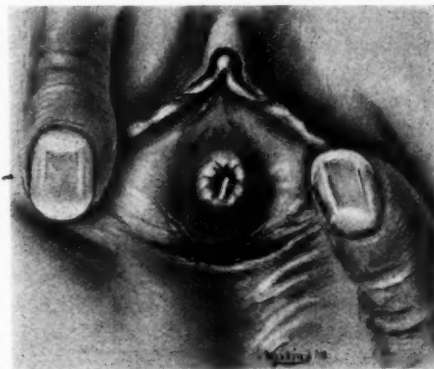


Fig. 6. Narrow cauterized stump after removing clamp.



Fig. 7. (Case 169585). Section of caruncle showing the general outline of the growth at low magnification.

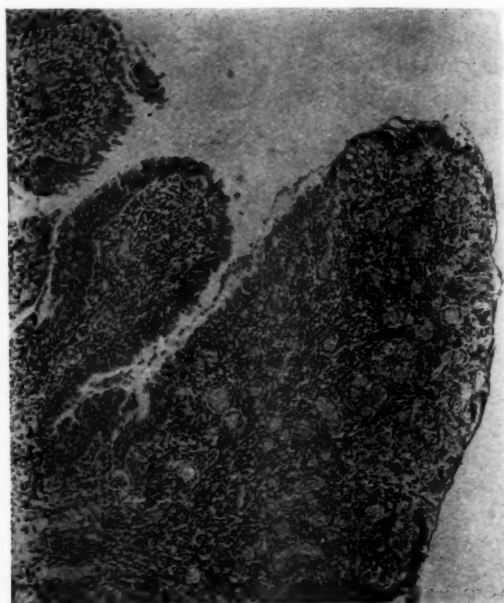


Fig. 8. (Case 169585). Caruncle showing the characteristic structure and epithelial covering (X50).

and even protruded from the meatus. The many patients with recurrences of the second type, prolapse of the mucosa, who have consulted us and for whom permanent relief was impossible led us, four years ago, to adopt our present form of procedure which has proved very satisfactory. The steps in the method are as follows:

1. The patient is placed in the lithotomy position, and the parts are thoroughly cleansed with soap and water. A swab of cotton on a toothpick saturated in 10 per cent cocaine solution and lubricated with a soluble lubricant is inserted into the urethra and left for ten minutes.

2. The labia are separated by an assistant. On examination the caruncle is found to consist either of a single tag on the posterior wall or of posterior and lateral masses. Each tag is picked up with a small Graefe fixation forceps and clamped off in the long axis of the urethra with a special clamp which has a broad blade and a narrow crushing edge. Care is taken to include in the bite all the caruncle and none of the submucosal structure of the urethra.

3. The growth is cut off close to the upper surface of the clamp; the crushing of the pedicle prevents all bleeding and makes an accurate re-

moval possible. The specimen is saved for microscopic study.

4. The cut-surface is thoroughly seared with acid nitrate of mercury solution applied with a



Fig. 9. (Case 169585). Section of caruncle shown in Figure 8 (X100).

wooden applicator. An excess of the acid to run over the blades of the clamp and cauterize other areas of the urethral mucosa is cautiously avoided.

All tags are removed in the same manner; when removal is complete one or more narrow longitudinal white lines about 1 cm. by 1 mm. mark the cauterized tissue; these lines are separated by normal mucosa. Within a week all evidence of the operation disappears. The advantages of this method or removal of urethral caruncles are:

1. The entire growth can be removed at a single operation.
2. The operation can be done without pain under local anesthesia.
3. Bleeding does not obscure the field during the operation nor annoy the patient afterward; the operator may be sure, therefore, that all the growth has been removed and recurrences thus avoided.
4. There is a minimum of scar tissue since there is no sloughing as the destruction of tissue is absolutely under control. The small amount of scar tissue remaining is in longitudinal lines and separated by islands of healthy mucosa so that a postoperative prolapse of the mucosa due to contraction of the scar does not occur.
5. Symptoms are relieved almost immediately.
6. The specimen removed is not destroyed and may be sectioned for microscopic study.

During the past four years 118 patients have been treated by this method; so far we have learned of only four recurrences.

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DISCUSSION

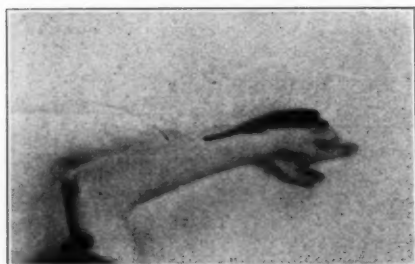
DR. C. E. RUTH, Des Moines, Iowa: In my earlier work I had a good deal of trouble with recurrences in these cases of urethral caruncle. It is quite readily explained as we get a better understanding of the pathology.

I was very glad to hear the essayist report successful results in those cases in which he used the cautery, although it is not the method I have used wholly. For the last six years or more I have used the galvano-cautery exclusively. As was stated by the essayist, the anterior wall is practically never involved, and for that reason, if we protect the anterior wall of the urethra by the blade of a urethral speculum we may with the small cautery point, such as is used quite extensively by rhinologists in cauterizing turbinates, destroy any of these growths in a moment under local anesthesia without pain to the patient, and in none of my cases have I had any recurrences since, and in no case has there been a complaint. The use of the cautery gives us an aseptic wound that heals kindly without pain to the patient, and no subsequent treatment is required in these cases.

DIAGNOSIS AND TREATMENT OF PERIPHERAL NERVE INJURIES

By A. F. BRATRUD, M. D.
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The discussion of peripheral nerve injuries covers so vast a field and is such a difficult and perplexing problem, that to cover it in detail in the brief time allotted, would be impossible. One of the problems encountered at the outset was the difficulty of keeping these cases under observation for a sufficient period of time to determine ultimate functional result. It was at once realized that team work was essential in the care of this class of patients, and this was done with Major M. B. Tinker, Med. Corps, USA., Chief of the Department of Surgery at U. S. Army General Hospital No. 26 and E. M. Hummel Contr. Surg., as consulting organic neurologist, with the co-operation of the orthopedic department taking care of splinting and orthopedic complications and the physiotherapy department looking after massage, baths and electric treatment. I shall present some of the most important points in diagnosis which were gained from our observation of over four hun-

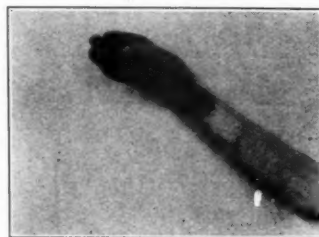


1 and 1a. Ulnar griffe and characteristic anaesthesia in severance of ulnar nerve. Some skin blocking above wrist.

dred cases and state briefly the operative technique and statistical review of the cases.

These cases were approached with the view of determining in as short a period as possible, the nerve or nerves involved, estimating the degree of injury, form of treatment to be pursued and prognosis for ultimate functional result. Cases were seen and examined carefully every three to four weeks, and records kept of any signs of increase or decrease in the severity of the symptoms. Subjective examination included—

1. Date of injury. Location, cause and position at time of injury.
2. Immediate symptoms.
 - a. Motor loss.
 - b. Sensory disturbances.
 - (1.) Pain; location; onset; duration.
 - (2.) Paresthesias; location; onset, duration.
 - (3.) Hyperesthesia.
 - (4.) Anaesthesia.
 - c. Complications. (Fractures, etc.)
3. Subsequent symptoms.
 - a. Motor.
 - b. Sensory.
 - c. Vasomotor (Cyanosis, edema, sweating.)



2. Ulnar and medium anaesthesia with skin blocking. Marked contracture from peritendinous adhesions and contraction of interosseal muscles.

d. Trophic. (Nails, hair, skin.)

4. Treatment and date of healing of wound. The objective examination gave information commensurate with the time spent. This included:

1. Wound. Location, character, size (open or closed). Usually, severe lesions of nerve could be excluded, where direct trauma could not have been produced by the missile but from resultant edema and pressure.
2. Attitude of extremity; i.e., wrist drop, etc. This at once gave a clue to the nerve involved.



3 and 3a. Anaesthesia in severe ulnar musculospiral and median nerve lesion. Glove anaesthesia which is seen in many functional cases.

3. Specific atrophy. Though this is always present, due consideration must be made in case of prolonged disuse of a limb,

lack of active exercise and physio-therapy. It is always more marked early in irritative nerve lesions.

4. Trophic changes.

- a. Skin. Smooth, glossy, scaly.
- b. Hypertrichosis.
- c. Nails. Dry, curved, ribbed and brittle.

These trophic changes are relatively insignificant in cases in which the limb has had active exercise, massage, baths or electricity; so as to keep up lymphatic and blood circulation. Hypertrichosis is



4. Complete musculospiral showing rather typical distribution. Note absence of contraction of supinator longus muscle.

present in any limb after extra protection as by a cast, and is of no diagnostic value.

- 5. Vasomotor disturbances. Sweating, cyanosis and edema. These may occur in an entire extremity or the peripheral distribution of the nerve involved or of the nerves not involved, i.e., in the peripheral distribution of median when injury is to the ulnar nerve.
- 6. Muscle tone. There is usually a fibrous feeling to the muscles in irritative lesions. At times, they are very tender to touch. Very rarely do we have any pain upon pressure when a complete severance exists. In complete severance, the muscles appear to hang from the bones, and the fingers may be pressed in between the muscles and the bones.
- 7. Motor Disturbances.
 - a. Active Motion. This should be estimated both in the range of the motion and motor power present. Care-

ful observation is necessary to determine the source of error and misinterpretation of muscle action present, due to the enervation of extraneous muscles: i.e., abduction of the fingers by the common extensors in ulnar paralysis, or extension of wrist by contraction of the interossei and common flexors in musculospiral lesions.

- b. Passive Motion. Location and degree of limitation of movement or



5. Wrist drop is musculospiral lesion.

excessive mobility. Limitation of movement is usually present in irritative nerve lesions due to fascial contractures and peritendinous adhesions. Other causes should be noted, such as defects in tissue involving muscles or tendons, joint fibrosis ankylosis, and contractures resulting from improper splinting or prolonged immobilization. Excessive mobility is always present in complete severance. In the case of a sciatic, the foot appears to dangle freely when the leg is moved about. In severance of a musculospiral, the carpal bones may even be dislocated from prolonged wrist drop. A rule which can nearly always be adhered to is, that the nerve supplying the

sensation to the skin surrounding a joint, supplies the ligaments of the joint.

8. Reflexes. Absence denotes severance or equivalent of the reflex arc. We have been unable to attach much importance to idio-muscular reflexes.
9. Sensory Disturbances. Sensory loss, anaesthesia, hypoaesthesia or hyperaesthesia to light touch and pain is best tested by using a soft camel hair brush. The patient is instructed to keep his eyes closed and answer "yes" every time he feels a stroke of the brush, as the operator works from the anaesthetic toward the normal area. Sensory loss is fairly normal in various lesions, though overlapping and abnormal distribution occurs, as will be seen from the pictures and sketches. Sensory loss from skin blocking must always be borne in mind. The area of pain disturbance usually follows those of a touch area in peripheral nerve injuries. It is best determined with a pin.
10. Tinel's sign, D. T. P., or distal tingling on percussion. This depends on the fact that when regenerating axones are percussed, there is a tingling in the distribution reached at that time. When regeneration is complete, it is lost. The limb must be at rest at the time of the examination so as to avoid tingling from jarring of the limb. Percussion should be light and performed from a point distal to lesion but not close enough to cause jarring of the scar or wound site.



6. Partial right musculocutaneous nerve lesion showing biceps muscle entirely gone.



7. Circumflex nerve lesion. Inability to elevate arm.

When correctly performed it is a reliable guide in determining the course to be pursued, when surgical interference is questionable.

11. Electric Examination. This gives valuable information and dispels doubt in complicated and difficult cases, helps in making a prognosis and gives valuable indications as to treatment. It is dependent upon the reaction of degeneration in the neuro-muscular mechanism, and usually begins in about two weeks. It may be partial or complete. The characteristics of partial R. D. are:
 - a. Decreased faradic and galvanic contractility by direct stimulation to nerve.
 - b. Decreased faradic irritability and decreased galvanic irritability by direct stimulation to muscles. Galvanic contractility may be increased early in the course.

The character of the response is of more significance than the volume, it being a slow, sluggish, worm-like character where the R. D. is partial or complete, or even lost entirely in complete R. D. Faradic contractility excludes real paralysis. Greater contraction on reversal of the poles is often present. The current should not be used strong enough to cause an overflow contraction from stim-



8. Median Nerve lesion, also internal cutaneous. Distribution of internal cutaneous is wider than normal on account of skin blocking.

ulation of antagonistic nerves or muscles. The muscles of the normal limb should be tested before applying stimulation to the affected side. In any lesion where the R. D. is present, motor points of muscles always tend to move toward the distal portion of limb. Scars, fascial contractures and peritendinous adhesions must be given due consideration. Prolonged splinting and immobilization may so vitiate the result as to make the electric examination of no value. Lastly, it must be remembered that motor function will return before the excitability to either faradism or galvanism.

Motor results of a nerve lesion are by no means easy to demonstrate. With each nerve lesion there are critical movements which are lost and an accurate knowledge of the peripheral distribution to the various muscles is essential as well as careful observation to exclude the action of extraneously enervated muscles. Characteristic critical loss of motor function in muscles or groups of muscles supplied by the different nerves is given briefly with the characteristic deformity of each. With injury to the musculospiral nerve, there is inability to extend the forearm, wrist, proximal phalanges of fingers and thumb. Occasionally, extension of the thumb is produced by the abductor pollicis through its median nerve supply, which in some cases sends a slip to the dorsal expansion of the distal phalanx. The powerful supinator longus does not show any contraction on flexion of the elbow. Wrist drop is the characteristic deformity.

With median nerve paralysis, the only critical motion lost is the inability to flex the distal

phalanges of the index finger and thumb. Occasionally, a median griffe is seen, consisting of a moderate flexion of the distal phalanges of the thumb, index and middle finger. It is the result of contraction and adhesion of the flexor tendons and sheaths.

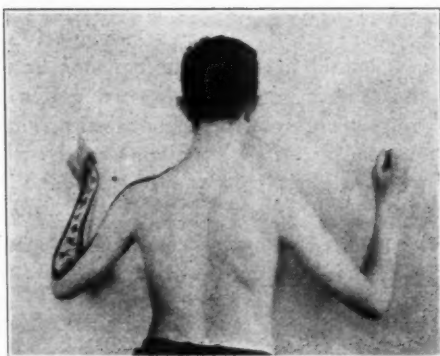
Motor loss in ulnar lesions is essentially a loss of the action of the little and ring finger and of the intrinsic muscles of the hand. The action of the dorsal interossei is to abduct the fingers and extend the distal phalanges, whilst the palmar interossei flex the proximal phalanx on the metacarpals and adduct the fingers. The lumbricales may compensate so as to feebly flex the proximal phalanx of the index and middle finger and extend the distal phalanges. At times, other muscles have so compensated as to show only loss of abduction of the little finger. Paralysis of the abductor pollicis is best tested for by having the patient hold between the index finger and thumb of each hand a piece of paper, and when pull is exerted on the paper, it is seen that on the normal side there is close opposition of the thumb and index finger, while on the side of the lesion, the paper will be held between the tip of the flexed thumb (median supply) and the index finger (prehension sign). Where the lesion is below the supply to the flexor, an ulnar griffe is produced by the action of the common extensors and flexors against unopposed action of the paralysed interossei and lumbricales. There is hyperextension of the proximal phalanx with flexion of the distal phalanges and abduction of the little finger.

Lesion of the circumflex causes a loss of abduction and elevation of the shoulder (deltoid). Even though we have great complexity of paralysis in lesions of the brachial plexus, great difficulty will not be encountered, if it is remembered that lesions of the fifth and sixth cervical roots cause involvement of the deltoid, biceps, brachialis anticus and supinator longus. If the lesion is sufficiently high, i.e., in the roots, there will be involvement of the rhomboids, supra and infra spinatus and subscapularis with resultant winged scapula deformity. With involvement of the eighth cervical and first dorsal, we have involvement of the intrinsic muscles of the hand. From the eighth cervical a median griffe may result, and from

the first dorsal root, an ulnar griffe usually results.

In the lower extremity, muscular action is simpler. Peroneal lesions cause inability to dorsi-flex and pronate the foot, while internal popliteal involvement causes inability to plantar flex and supinate the foot. Very rarely do we find a lesion of the sciatic high enough to cause interference with the hamstring group of muscles.

Lesions of the anterior crural causes loss of extension of the leg on the thigh, and weakness in flexing the thigh on the abdomen.



9a and 9b. Fairly typical distribution of fifth and sixth cervical root lesion. Shows wasting of rhomboids supra and infra spinatus.

Various clinicians have divided lesions of nerves according to the severity of injury into four syndromes and this answers well for all purposes. They are as follows; syndromes of interruption, compression, dissociation and irritation.

Characteristics of the syndrome of interruption are:

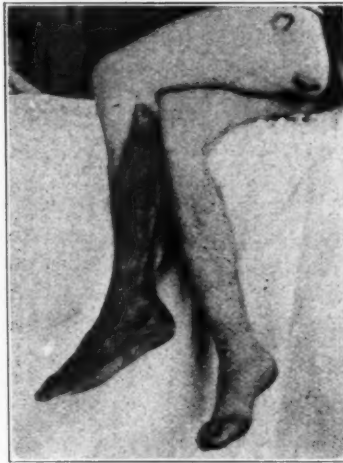
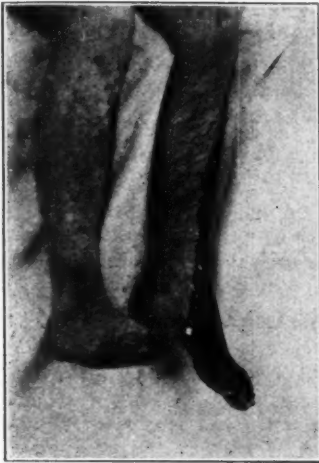


10. Musculospiral paralysis. Shows action of interossei (ulnar distribution) flexion of the proximal phalanges on the metacarpals, and extension of the distal phalanges in the proximal phalanges.

1. Paralysis of the muscles in the peripheral distribution of the involved nerve below the site of the lesion.
2. Specific atrophy, less marked early in the course than in irritative lesions.
3. Loss of tone of the involved muscles and ligaments causing characteristic deformities mentioned above, i.e., ulnar griffe, foot drop, etc. Excessive mobility of the joints due to lax ligaments many at times be so great as to permit dislocation of bones or joints, i.e., carpals in musculospiral lesions.
4. Loss of reflexes.
5. Reaction of degeneration.
6. Localized sensory loss in the peripheral distribution of nerve below the site of the lesion.
7. Absence of paresthesias.
8. Vasomotor and trophic disturbances.
9. Negative D. T. P.

Briefly, the syndrome of irritation comprises lesions which cause continuous or intermittent pains below the site of the lesion, made worse by pressure, i.e., causalgia.

Syndrome of compression is in reality a prineural condition which produces practically the same symptoms as that of a physiological interruption only to a lesser degree. The muscles are sensitive to pressure below the lesion. Vasomotor and trophic disturbances are usual-



11a, 11b and 11c. Anaesthesia in great sciatic nerve distribution.

ly worse than in interruption. Dissociated lesions involve only specific muscle and muscle groups.

Treatment of these cases should be carried out with the view of preventing deformities and preserving nutrition of the limb in order to have it in the best possible condition for regeneration and operative interference, should the latter be indicated. Proper application of splints is essential to paralysed muscles, but we have seen so serious contractures result from prolonged immobilization, that good functional results were an utter impossibility. They should be encouraged in all non-harmful motion, active and passive, i.e., any motion which does not overstretch already paralysed tendons. Baths of various types as well as massage and electricity should be given as soon as the condition of the wound will permit and if these are carried out, trophic and vasomotor changes will be insignificant.

Operative technique varies in different hospitals in regard to the length of time to wait after the healing of wounds on account of residual infection, preparation of patient, anaesthesia, protection of involved nerve, etc. The technique at U. S. A. General Hospital No. 26, is as follows:

1. Three months interval after complete healing of wounds.
2. Forty-eight hour preparation of patient.



12. Prehension seen in ulnar nerve injury.

3. Local and gas-oxygen anaesthesia from standpoint of
 - a. Aid to careful dissection.
 - b. Aid in locating site of lesion.
 - c. Patient's postoperative safety and comfort.
4. Excision of scar.
5. Neurolysis of nerve or resection of neuroma or severed ends of nerve to normal looking nerve fasciculi as indicated.
6. End to end suture with fine silk, being careful to have no eversion of sutured ends.

7. Fat fascia graft around nerve or transplanting to muscle bed for protection of nerve or suture line.
8. Autogenous or homogeneous grafts to fill gap where distance is so great as not to allow apposition of ends by transplanting nerve or by position of limb.
9. Pedicle flap from chest where extensive loss of tissue.
10. Carrel-Dakin if suspicious infection. (16% of scars show positive culture.)
11. Loose suture of wounds.
12. Tendon transplantation if muscle or tendon destruction is so great as to offer poor prognosis.

In the following tables are grouped (1) cases which we have treated and followed to complete recovery; (2) cases which show satisfactory progress and should obtain good functional result; (3) cases in which signs of spontaneous recovery are not present and will require surgical measures; (4) failures from neurolysis after lapse of six months; and (5) cases operated and in which sufficient time has not elapsed to determine functional result. All cases will be followed, and at the end of twelve months, report of these will be published.

TABLE OF CASES

Suture	Class 1. Recovered	Class 2. Recovering	Class 3. Surgical	Class 4. Failures	Class 5. Insufficient time to determine	TOTAL
Ulnar	1	2			12	15
Median		1			4	5
Musculospiral		5			3	8
Brachial Plexus						0
Sciatic		2			6	8
Peroneal					4	4
Neurolysis	1	10	0	0	29	40
Ulnar	2	3		2		7
Median	1	3		1	3	8
Musculospiral	1					1
Brachial Plexus		1				1
No operation	4	7	0	3	3	17
Ulnar	22	47	3			72
Musculospiral	23	40	6			69
Median	11	19	2			32
Musculocutaneous	4	3	0			7
Brachial Plexus	2	4	1			7
Circumflex	4	2	2			8
Sciatic	7	12	3			22
Peroneal	19	12	3			34
Anterior Crural	1	0	0			1
Post Inter osseus	2	0	0			2
	93	144	17			254

Cases operated previous to admittance.

	Recovered	Recovering	Failure	Too soon to determine	TOTAL
Sutures					
Musculospiral	4	1	2	1	8
Ulnar	3				3
Median	1				1
Sciatic		3			3
Peroneal					
Neurolysis					
Ulnar	1			2	3

Failure in this series was due in two cases to dense neuroma which was not resected and in remaining cases to infection.

CONCLUSIONS.

1. Careful examination and records every three or four weeks of changes in motor results, sensory disturbances and electrical reactions, is essential to correctly estimate degree of severity on injury and determine course of treatment.
2. Proper splinting, where indicated, is essential in prevention of deformities and in correction of already present deformities. Improper splinting may so alter tissues and cause such deformity that at best, period of recovery will be prolonged by months or make ultimate complete functional result an utter impossibility.
3. An accurate knowledge of the anatomy of the parts involved is essential for a careful dissection and preservation of all muscular branches.
4. Operative technique is so varied, and calls for such unusual judgment that a successful outcome may forever be spoiled by a poor operator.
5. A physio-therapy department with well trained men or women must work in conjunction with the neuro-surgical team, changing treatment whenever necessary to meet special requirements. The patient should be encouraged in both active and passive non-harmful exercise.
6. About seventy five percent of cases go on to spontaneous recovery.
7. The patient should be made to feel that a personal interest is being taken in him by a well organized team, and that even if ultimate complete functional result is not obtained by physiotherapy, splinting, nerve liberation or suture, that a successful end result may be had by tendon transplantation.

THE CLINICAL COURSE AND PATHOLOGY OF AN OBSCURE OTITIS CAUSING LOOSE BODIES IN JOINTS*

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Four cases of knee joint trouble presenting unusual features form the basis of this article. Pain extending over a period of four years in one case was the only symptom felt or complained of and in the other three, pain alone was a predominating symptom.

CASE 1: Male age 51. No history of injury of any kind, first noticed symptoms after a long drive on a winter's night, in getting out of the sleigh he could not straighten his knee and for a year following could not entirely straighten it, forcible efforts to completely ex-

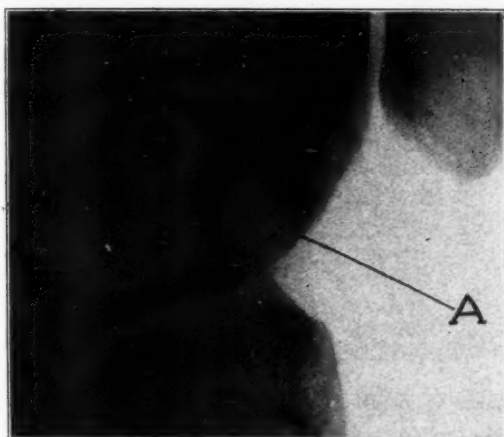


FIG. 1: Shows at (A) the area of bone which later became detached and was extruded into the joint.

tend it caused pain, at other times only a dull ache was experienced. On examination there was neither swelling nor joint tenderness. A radiograph (Fig. 1) showed on the joint end of the mesial condyle a small body in a small well defined oval area; a diagnosis of osteochondritis was made and the opinion expressed that the body referred to would sooner or later become free in the joint cavity. A year later the first symptoms of a loose body were noticed and a radiograph (Fig. 2) showed a body in the



FIG. 2: Showing at (A) the body referred to in FIG. 1, which has become detached and extruded into the joint. The oval area which it formerly occupied is now seen empty.

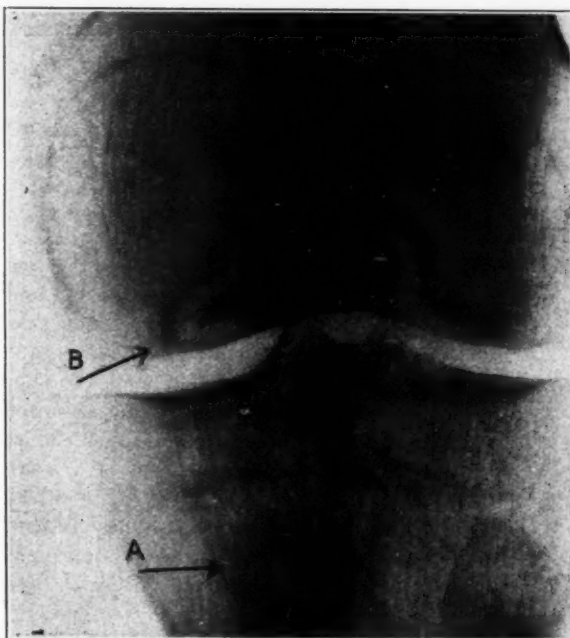


FIG. 3: Case No. 2; (A) A small area of rarification surrounded by an area of sclerosis indicating a probable former inflammatory focus in the tibia; this area may represent a past infection and if so may have some bearing on the inflammatory nature of the area at (B) and thus support the inflammatory theory of osteochondritis dissecans in general. (B) Area of osteochondritis dissecans which later became extruded into the joint. At operation it was found to be attached to the femur by some strands of the posterior crucial ligament.

*Read before the Southern Minnesota Medical Association at Rochester, June 23-24, 1919.



FIG. 4: Case No. 3; One year later than Fig 3.

suprapatellar region, at the same time the disappearance of the body referred to as occupying the cavity in the mesial condyle was evident.

CASE 2: Female age 17. No history of injury; complained of pain in the knee, this was more or less constant and had existed for four years. There was neither swelling, tenderness, nor limitation of movement. In a radiograph taken at this time a small lesion much the same as in Case 1, was overlooked and attention focused on a small lesion in the upper end of the tibia. (Fig 3a) There was here a small cavity surrounded by an area of increased density; former experiences having demonstrated areas of this appearance to represent an area of granulating osteomyelitis, it was operated upon without relief to the patient. Further radiographic study now disclosed the area in the femur condyle (Fig. 3b) and because of the fear that on opening the joint one might not be able to find the lesion and that again in all probability a loose body would appear and could be removed, a watchful waiting policy was advised. During the interval of a year the patient was seen occasionally and al-

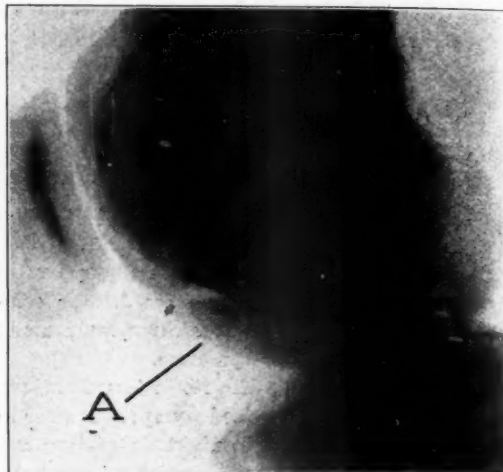


FIG. 5: Case No. 3; (A) the area of bone removed at operation and shown in FIG. 7.

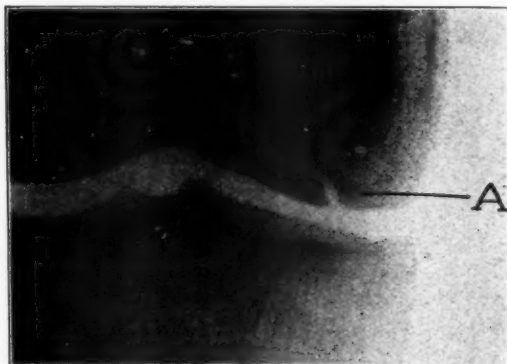


FIG. 6: Case No. 3; (A) The area of bone removed at operation and shown in FIG. 7.

ways pain was the only symptom. Finally one year from the first observation and four years from the onset of pain, movement of the joint began to be painful and slight joint swelling was noticed. In a radiograph (Fig. 4) taken at this time the oval area referred to seemed to contain a body and thinking that the new symptom meant that the body was about to be extruded, operation was advised and done one week later, a day or two before the operation severe pain and locking of the joint occurred. At operation the synovial membrane was quite reddened and there was a moderate amount of ropy straw colored fluid; on the joint surface of the mesial condyle of the femur, a defect was found in the immediate neighborhood of

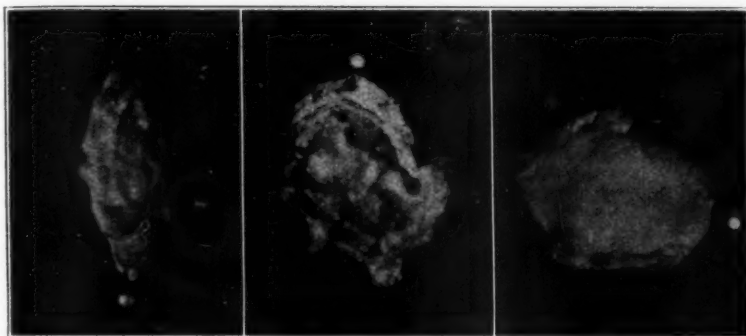


FIG. 7: Showing the area of bone removed in Case No. 3, and shown in FIG. 5 and 6. The view at the left shows the joint surface, that in the center shows the upper surface covered with fibro cartilage, and that at the right shows the thickness of the area removed.

the posterior crucial ligament, this defect was roughly about the size of a nickel, a body corresponding in shape and size to this defect was attached to the lateral aspect of the mesial condyle by some strands of the posterior crucial ligament.

CASE 3: Male age 18. Complains of painful and swollen knee. For six years he suffered from "rheumatism" in this knee, that is he had more or less constant pain until one year ago when he experienced an unusual amount of pain, his knee became swollen and movement painful, these acute symptoms subsided more or less and for a year he suffered only from pain again. The present condition began in the same manner as the attack a year previously; he now has uniform swelling of the joint with considerable restriction of movement. Radiographs disclosed the conditions seen in (Fig. 5 and 6). Experience gained from the former two cases seemed to indicate that because of the change in the symptoms from only pain to swelling and disturbance of function, the dissected bone was becoming more detached. Six years of symptoms and the probability of an indefinite period of disability in the future made one advise operation, although believing that the dissected piece of bone had not become extruded from the bed. On opening the joint there was found a moderate amount of ropy straw colored fluid, the synovial membrane was much reddened. An area of the joint cartilage corresponding in size

with the piece of bone and cartilage shown in (Fig. 7) was seen to be of a yellowish white color and was lacking in lustre; at one part of the circumference of this area a small fissure was noticeable in the cartilage and one now noticed that

the entire area was very slightly bulging. Pressure on this raised surface gave one the impression that it was depressible as if resting on a cushion-like bed. An incision was now made in the cartilage on the circumference of the raised area and the piece of bone and cartilage as seen in (Fig. 7) was pried from its bed; in removing it one was conscious of the fact that it still remained somewhat loosely attached at its base. The surface of the bed from which it was removed was indurated, covered here and there with granulation tissue and at the centre of the cavity bled quite freely. The removed fragment was thus doubly convex, covered with joint cartilage on one surface and with an irregular layer of fibro cartilage on the opposite or superior surface, between these areas of cartilage was a thin plate of bone. In the specimen removed in Case 2, there still remained quite a bundle of fibres of the crucial ligament.

CASE 4: Male age 28. Possible trauma eighteen years ago. The present trouble has existed for fifteen years, this consists of a catching pain which lasts a moment or two, during these fifteen years he would have periods where the catching would occur for a week or two and then disappear for two or three months. He is never conscious of pain except at the periods of catching and when at rest there is never any pain. Hyperextension and acute flexion with attempts at outward rotation cause slight pain. There is nothing objective to be found on examination. The radiographic findings are practically the same as in Case 2.

On the basis of these four cases one can

pretty definitely analyze the clinical phenomena and establish the clinical picture of a very definite pathological process, the cause of this process must still perhaps remain obscure, but in analyzing the clinical in conjunction with the pathological there is strong presumptive evidence that it is an inflammatory process and confined to the bone, that is, it is a non-suppurating ostitis, the cartilage is not involved in the inflammatory process but in time becomes fractured and permits the extrusion of the dissected bone.

SYMPTOMS: In all of the cases pain was the only symptom for several years, pain of an aching character and referred to the knee joint; after several years of pain the function of the joint becomes impaired, swelling and limitation of movement more or less persistent or in attacks of varying severity, these attacks at first are not accompanied by characteristic catching or locking of the joint, they resemble more the clinical picture seen in villous arthritis or so called "fringe joints," or in the earlier stages of arthritis deformans. Finally the symptoms present the characteristic picture of a loose body.

Pain alone then is a characteristic phenomenon, there is perhaps no other diseased condition of the joints or of the bone in the immediate vicinity of the joint (for after all this condition, is primarily an ostitis) that exists for the same length of time without causing any disturbance of joint function. In Case 2, there was four years of pain alone, in Case 4, 15 years of symptoms, how early the radiograph would reveal the lesion one cannot say, in this case pain had already existed two years before radiographic study was undertaken.

The gross appearance of the removed bodies has been described above, the histological examination showed the hyaline cartilage to be normal in appearance, the bone was also normal, the fibro cartilage was more cellular at its attachment to the bone than at the periphery and in one area a number of well formed capillary tufts were seen running from the bone through the fibro cartilage to its periphery. These four cases represent a condition described by Konig in 1888 as osteochondritis dissecans, he recognized it as a definite pathological process. Since that time there has

been a good deal of speculation indulged in as to the cause of the condition, the majority agreeing that trauma is responsible. Ludloff (1908) reporting several cases and accurately describing the condition found on opening the knee joint, lays emphasis upon the fact that in none of his cases could a definite history of trauma be obtained. Being unwilling to give up the traumatic theory he proceeds to theorize further and argue that while gross trauma may not play a part, numerous and repeated trauma unrecognized by the patient may. The lesion is most often found in the lower end of the femur and usually at a very definite point in an area of the medial condyle in the immediate vicinity of the attachment of the internal crucial ligament. Ludloff theorizes that the repeated pull of this ligament may have interfered with the blood supply through an end artery and so a definite area of the bone thus became separated off.

Proceeding to an analysis of the traumatic theory as outlined by Ludloff, we must take into consideration the long clinical course with pain predominating; the separated body has clearly not been deprived of its nutrition because fibro cartilage has grown on the detached surface and the presence of capillaries in this fibro cartilage indicates also a vital process; to assume a separation due to death of the bone, we must assume an aseptic death with the small plate of bone remaining in place as an autogenous graft, most suitably situated for union with the parent bone. To be fair in argument, however, we would have to admit that being attached to the joint cartilage it is possible that almost persistent movement would prevent union and thus allow of the growth of cartilage originating from the hyaline cartilage of the point along the line of cleavage. Once this separated surface becomes covered with cartilage, its union with the parent bone being still prevented by more or less continuous movement, there remains only the hyaline cartilage of the joint to hold it in place; probably because of the growth of fibro cartilage it might be assumed that the separated fragment would be caused to buldge as it were toward the joint and finally lead to fracture of the hyaline plate holding it in place with a consequent extrusion of the fragment into the joint

as a loose body. To follow this process over a period of four, six and ten years respectively and make it cause pain all these years requires a good deal of imagination. As indicated by the title of this paper, the writer leans to the theory that the process is due to an infection and that the symptoms are due to a low grade of inflammation. The clinical and pathological manifestations of infection of any organ or tissue may be of any grade of severity and may become quiescent for varying periods of time both as to action and symptoms. Infection of bone may lie dormant for many years to again resume either an indolent or very active course.

The base of the cavity from which this fragment has escaped was covered by a raw bleeding surface appearing like granulation tissue and the surrounding bone was indurated, this induration was found at operation and the radiographic picture shows the loose body to be surrounded by a ring of greater density than the surrounding bone, these appearances are suggestive of chronic bone infection.

In tuberculosis a large process of bone may disappear without the formation of any abscess, in syphilis, sclerosing otitis with great pain may leave behind nothing but a scar. In staphylococcus infection there may result a granulating otitis existing for a long period of time never leading to pus formation but which may eventually lead to small sequestrum formation.

We have then in our cases constant intermittent pain for years, attending a process which eventually separates off a fragment of bone, not a sequestrum; because it is still living, along the track of separation cartilage grows from the hyaline plate of the joint surface, finally bulging toward the joint occurs fracture of the hyaline plate and extrusion of the separated fragment.

Each joint presents anatomical and physiological peculiarities which make the differentiation of injury and disease an interesting and at times difficult task. Perhaps the knee joint presents more puzzles than any other joint, its large synovial cavity with communicating and non-communicating bursae, the synovial folds, semilunar cartilages, crucial ligaments, all furnish vulnerable aspects for injury, this with the

numerous diseases common to all joints makes the study of its disabilities quite a problem. When we remember that the early symptoms of many diseases of joints are pain and later limitation of movement the difficulty of early differentiation is evident.

If we cannot assign the cause of the disease, diagnosis, treatment and prognosis are quite as interesting to the patients as the discovery of the etiology. The clinical and radiographic evidences are sufficient to enable us to assure them that the trouble in the joint is a benign one and that in the period when the dissection of the fragment is taking place, both the patient and doctor can, if the pain and disability are not too disturbing, wait with perfect equanimity until the fragment is extruded into the joint. If either pain or recurring inflammatory attacks are severe enough to justify it, operative removal is indicated. The definite location and the appearance of the overlying cartilage should make it possible to find the lesion. Once the fragment is extruded into the joint the problem is that of a loose body. Some people maintain that their loose bodies do not cause sufficient trouble to warrant their operative removal so that here too there must be the individual consideration of the subject.

DISCUSSION

DR. M. S. HENDERSON, Rochester: We have to thank Dr. Colvin for drawing our attention to a group of persons comprising a definite although small clinical entity. Probably the most interesting point is the etiology. Why do these bodies occur? At best we can only speculate. In the first place, we have the traumatic theory. I think we all acknowledge that trauma does play a definite part in the production of these bodies, but it is in itself insufficient to fully account for them.

The thought has suggested itself that these bodies may be indirectly caused by a metabolic condition. We see people quite frequently with brittle finger nails; we see people with brittle hair. Their hair breaks off easily; their finger nails are brittle and break, and why should we not have joint surfaces that are brittle? We get loose bodies in the knee joints, the shoulder joints, the hip joints and ankle joints, although rarely in the hip joints. The knee joint being the largest joint in the body and subject to trauma, may not trauma be the direct cause of these pieces of too brittle cartilage breaking off? The fact that they always come from one place in the knee joint is also interesting. There is great strain thrown on the internal crucial ligament when the knee is in extension, and the constant tugging of

this ligament might have something to do with the injury of the cartilage in the area and its subsequent dessication.

Some of these patients with loose bodies in joints complain very little and they are content to go along and put up with the inconvenience. The mere presence of loose bodies in a joint is not a sufficient indication for their removal unless they give symptoms sufficient to warrant operative interference.

A NEISSER; LUETIC OUTLOOK

BY HARRY A. BAKER, M. D.,
Minneapolis, Minn.

Of all the diseases to which mankind is subject, there are none where the dictum rings so true and is so applicable, prevention is better than cure, than when applied to the venereal diseases; for despite the refinements of diagnosis, standardization of treatment and possibilities of cure, an individual once infected, through ignorance, inadvertance or over confidence, becomes a source of infection, an economic loss and often a menace to the community.

We have seen how futile would have been efforts toward victory should the Spanish Flu have continued its decimations; and we know too how dear and vacuous the price of victory should it have resulted in a destruction of the victor as well as the vanquished. The havoc wrought by the venereal diseases is as grave and the economic loss as great as that of the present pandemic, for besides minimizing the efficiency of soldiers and undermining the strength of citizens, the ravages of Neisser and lues extend to generations yet unborn.

Of these things the profession have been aware for a long time and many have been the attempts, of necessity by indirection, to control the scourge. Two heretofore apparently insurmountable barriers have handicapped all previous efforts: the liquor traffic, antidotal to all civic and moral progress, and a conspiracy of silence on part of press and people in matters of sexual hygiene. Now that national prohibition has come into effect and the press is ready to spread to an eager public, information in connection with activities of the Public Health Service and the Departments of Pre-

ventable Diseases of the various State Health Departments, not alone is control a present day realization, but eradication among the Utopian possibilities.

Simultaneously with the declaration of war against Germany, the war department declared war against these microbes. The programme outlined is familiar to us all. It is the plan of attack and the course of action of the joint minds of the men of the country who have individually made a study of the prevention and cure of these diseases and an altruistic application of their art:

1. Abolition of Liquor Traffic.
2. Suppression of Vice.
3. Educational Propaganda in Matters of Hygiene.
4. Prophylaxis in Army and State.

In a word, *A RECLAMATION of MEN*. Until now they have been war measures, but it is evidently the intent, with the return of peace, that they be waged with continued and undiminished vigor, since they are considered as essential to the ascendancy and prosperity of a nation as is preparedness, and the big stick, and the discipline and strength consequent upon universal military training. Already the statistical curve shows the beneficity of this programme.

The work of the health boards and the hygiene commissions therefore is Aegean in its magnitude; to be but in part successful must need have the full co-operation of all the doctors of state and country.

The cure of disease per se is but incidental to the good that will be accomplished by propaganda so necessary as a basis for prevention and treatment. The immediate aim is the conservation of our human resources; the ultimate goal is the moral improvement and elevation of the entire nation. The education needed to obtain prevention; the laws necessary to secure control; and the moral discipline, a control and right direction of desires, essential to obtain a cure, all assist in the development of character; and character, in individual as in nation, we are told, is the consummation devoutly to be wished and maintained.

There are several truths about Neisser and Lues which cannot be too oft repeated. Both are preventable. The treatment of both is

*Presented before the Annual Meeting of the Southern Minnesota Medical Association at Mankato, January 20-21, 1919.

standardized. Uncomplicated Neisser is curable and lues recognized early is immediately made non contagious, perhaps cured; Sterilisatio Magna of Ehrlich, the possibilities of which we are already convinced.

The complications of lues for the most part are cerebro-spinal, an attack of the organism upon the point of least resistance, and in the strife and stress of the times, it is not surprising that the nervous system becomes the most vulnerable. To my mind, paraluetics—tabetics and paretics—are contemporaneous reminders of the past insufficientism of our science together with inadequate national health measure as prevention; and those of the future will be isolated instances of escaped or neglected treatment or shock.

The best treatment is the early intensive treatment and not the least of its advantages is the possibility of discharging patient as cured within the lifetime of doctor or patient.

To those interested in the control of venereal diseases, the outlook for the future is most promising. With civic communities organized and prepared to combat diseases in state and surgeons reporting success of prophylaxis in army, Lues should be as seldom seen as Leprosy and as mildly virulent as variola. It was advertising that killed the fly, "Swat the Fly," it was publicity that controlled tuberculosis, it is education that will minimize the venereal peril.

DISCUSSION

DR. HARRY G. IRVINE, Minneapolis: I think the time is ripe for a general discussion of this subject, particularly with general practitioners, and I think the association is to be congratulated on having had this subject brought before it by Dr. Baker, not in an effort to give a detailed account of the work which has been done or which is to be done, but simply to bring it up as a general topic of discussion and to suggest a general scheme for control of these diseases and a campaign of education in regard to them.

It may interest you somewhat to emphasize some of the work which has been attempted by the State Board of Health through the Division on Venereal Diseases. There are a number of points which have been brought up at various times by different individuals. Some persons have understood that we had the idea of attempting to eradicate venereal diseases by passing rules and regulations. They apparently understood that this was all that was to be done, that the State Board of Health passed rules and regulations that doctors must report their cases, and

that was the end of it. Others thought we would give lectures on the subject and distribute pamphlets. The real fundamental principle upon which the campaign has been carried out is that the disease has been attacked from all of these angles. We have attempted to realize that there is good accomplished in preaching morality; that there has been good done by prophylactic treatment; that there has been good accomplished in the educational propaganda, and so on, and we have attempted definitely to coordinate and to correlate this work and carry it on under a definite scheme. It divides itself into four phases: Education, social service work, law enforcement, and medical treatment. Under education effort has been made to reach different groups of people, particularly groups who themselves are concerned in teaching others. For instance, a course of lectures has been given in all normal schools of the state; a course of lectures given to Parents, and Teachers Associations, to public health nurses and school nurses, and to all those people who can carry the propaganda on. We have attempted along the general lines of publicity to get the public generally interested and educated by educating different groups of people, by distributing pamphlets, by the use of films, etc. A story pictured upon the screen has given most excellent results.

The distinctly medical work has been carried on by starting clinics. We have started five dispensaries in St. Paul, Minneapolis and Duluth. The work done in these dispensaries is being financed through a federal appropriation which the state received a few months ago, and these clinics provide adequate service for a number of people who could not go to the clinics in daytime, and for people who are working and earning money sufficient to support their families but not sufficient to pay the fees necessary to bring about a cure. Many of these people have been separated from the quack and faker. We have attempted to advertise in the same columns of the newspapers as the quacks and have tried systematically to catch the interest of these patients, telling them that the quacks are ever ready to extract their money, and advising them to come to the dispensaries to be treated free if they cannot afford to pay.

At the evening dispensary for men at the University of Minnesota, which has been going on for two or three months, there were fifty-seven patients one night. There is also a dispensary for women which is conducted at the City Hospital. In St. Paul two dispensaries are running. The attendance at all of these clinics is anywhere from twenty-five to fifty at a session, and many patients that are coming to these dispensaries have been bunkoed out of their money by fakers and have attempted self-treatment with medicines procured at drug stores.

We hope at some future time to institute an advisory clinic to which the general practitioner who has not the equipment for early diagnosis, may send his patients for nothing or for a nominal fee to be

examined for Neisserian infection and Spirochetes or to have diagnoses made, and have the patients referred back to the physician for treatment. This would be of great assistance to the general practitioner and an immense benefit to the patient.

We have stimulated law enforcement in various communities. We believe that the suppression of prostitution has a definite effect upon venereal diseases. The records appear to prove this conclusively.

We have attempted to institute quarantine where necessary, and then follow it up by the social service department workers. The social service work is new, and a great many general practitioners do not clearly understand it. It is hard for many men to realize that an outsider as the social worker appears to them, can help them handle their cases. This social service work has brought that phase of the question to the attention of a great many men, and probably twenty different communities have had the opportunity to see what can be done in bringing back delinquent patients and finding out the sources of infection. The social service department picks up and brings cases for examination; we try to find out the sources of infection; delinquent patients are followed up, and we follow up cases going through the workhouses. Up to the present time there have been approximately one hundred and fifty lectures given, with an attendance of forty-five thousand people. The film "Fit to Fight" most of you have seen, this film has been shown to five thousand persons. The new film "The End of the Road" has been shown to about fifteen thousand people. The stereomograph, an automatic picture machine used in industrial plants, has been viewed by ten thousand people. We have distributed approximately forty thousand pieces of literature. There has been no particular effort made to hand out this literature; it has been furnished on a written or personal request or in connection with lecture work where persons have asked for it at the time of the lecture.

As to the number of cases reported, we have had reported up to January 1st of this year about 1600 cases of syphilis, 1800 cases of gonorrhea, and 70 cases of chancroid. These reports have come from 250 doctors and from 89 different communities of the state; 125 sources of infection have been investigated and brought under treatment. From May 18 of last year 742 cases have been investigated. These were sources of infection, cases referred from the workhouses, or cases reported as delinquent patients, or reported for some other reason for special investigation.

DR. F. R. WRIGHT, Minneapolis.

Mr. Chairman: Venereal diseases should be placed in the class which we call communicable diseases. There is no question that the spread of all communicable diseases can be prevented. As to how to prevent this spreading there are two methods of doing it. One is by control; the other is by education. At the present time we have a great propaganda to control these diseases. The Army presents figures

which are misleading because they are figures that apply only to the Army. All cantonments have been located in small communities, where there are comparatively few prostitutes, and where prostitutes cannot find lodging suitable to their vocation. The men are under absolute orders. They are told, if they contract venereal disease, they become disgraced; their names are put on the Army records; their pay is stopped, and all liberties are taken away.

Outside of the Army there is no control. Every individual is governed by his own sweet will and opportunity. Our State Board of Health is undertaking to educate the general public. In spite of the work they do, and the instructions they give, people cannot be educated to lose their sexual desires, and there is no use undertaking it. People have always had sexual intercourse, and they are going to keep it up. Educate them as you may and they will not give up this ancient custom.

Work similar to that which our State Board of Health is doing at the present time was done long ago. A meeting of men, interested in the control and treatment of Venereal diseases, was held in Copenhagen, Denmark in 1873. If those who are interested will look up the American Journal of Syphilis for January, 1874, they will find a report of this meeting made by a man appointed by the American Medical Association. This report shows that all questions of our present propaganda, except the reporting of diseased men, were considered at that time, and that Finland reported that after 25 years of work against Venereal diseases, during which time the Government had furnished free treatment to all patients applying for it, Syphilis and Gonorrhea were on the increase.

Dr. Irvine reports the number of lectures given by the State Board of Health, and says that 25,000 women attended these lectures. What does this amount to? In my opinion very little. I had my stenographer, unbeknown to the State Board of Health or to the lecturer, take down one of these lectures. This was a noon day lecture given to the working people of Minneapolis. She came back a most disgusted woman. You should read her report of that lecture. It was simply "rot."

The other side of the education question is this: There are not 20 physicians in the State of Minnesota who are competent to treat Venereal diseases. There are not 20 men, of 2200 physicians practicing in the State, who know the pathology of Gonorrhea. There are few diseases whose clinical symptoms, when understood and accurately interpreted by a knowledge of the pathology present, indicate treatment as clearly and as accurately as those of gonorrhea. Yet physicians will not take the trouble to learn this pathology, and to interpret these symptoms. Physicians are not honest enough with themselves, or with their patients, to admit they do not know venereal diseases, and to send these patients to someone who has made a study of these conditions. There are men sitting in this room who have

treated case after case of gonorrhea as long as the man could afford to pay. When the man can no longer afford to pay, or when he becomes dissatisfied with the progress made, they have sent him to somebody else.

The thing that controls disease is the thing that cures that disease. You cannot control venereal diseases until you can educate the Medical profession to know something about these diseases, and stimulate their interest to give these people proper care. The average practitioner will not examine the urine or a slide in making the diagnosis, but will write a prescription, which he learned from a text book 25 to 30 years ago, and charge the young man ten dollars. The next patient this physician sees will probably be a dirty laboring man. He will take time to have this man stripped and examined from head to foot, spend one-half to three quarters of an hour, and charge him two to three dollars. He cannot see any dishonesty in this practice. As a matter of fact he makes a victim out of the boy who has been so unfortunate as to acquire gonorrhea. He goes on the theory that the young man has had his pleasure, and he should be allowed to pay for it.

An educational campaign has been going on in this State for the control of Venereal diseases. The average doctor does not know as much about gonorrhea as the fellow that has had it three or four times. The law provides that the State Board shall chase up the patients reported to them, and force them to go to some doctor. It, however, makes no requirement that the doctor to whom these patients are sent shall know anything about Venereal diseases. He must be a doctor—that is all. The doctor who undertakes to treat these cases ought to know something about them. If he does not, he should have personal honesty enough to admit it, and to send them to somebody who will take the proper care of them.

Dr. Baker spoke of lessening the complications of Venereal diseases. In reply to this I want to say that the complications of venereal diseases will be lessened when the Medical profession learns to treat these diseases, and not until then.

I want to correct one statement in regard to chance in connection with spinal syphilis. I do not think chance has much to do with it. As long ago as 1900, Professor Neuman of Vienna, taught that because syphilis runs a definite course, the same as other infectious diseases, it must be due to some definite infectious agent. That there must be three species of these infectious agents, whatever they are; because certain cases develop lesions of the bone; certain cases run their course in the skin and mucous membrane, while other cases are attacked in the nervous system. Seldom do we find the three running together. The man who has syphilis of his nervous system has had a light early syphilis. Syphilis of the nervous system is rarely ever accompanied by gummata. Since we know the cause of syphilis, and can get the spirochaeta under the microscope

and study them, we find that they present certain variations. In certain specimens, not in all, we find spirochaeta which will run in one direction across the microscopic field, then suddenly reverse its motion and run backward. In other specimens we do not find this form of spirochaeta. It is now believed by investigators that this form of spirochaeta, which has the backward and forward motion, is the one which attacks the nervous system.

DR. BAKER (closing): It is agreed that the work of the State Board of Health is an old programme. In ancient times hygienic laws were interwoven with those of religion; for what reasons we may draw our own conclusions. If today there are any about who have no regard for religion and know no fear of infection, it would seem well to enact health laws and insist upon respect for law. I thank the doctors for their generous discussion.

THE EARLY DIAGNOSIS AND TREATMENT OF ACUTE INFLAMMATIONS OF THE EYE*

By E. W. BENHAM, M. D.,
Mankato, Minn.

Observation of patients with acute inflammatory diseases of the eye leaves the impression that in many instances pain, loss of time and disability might be materially lessened if the advantages of early diagnosis and appropriate treatment were more generally recognized.

Diseases of the character described occur rather frequently, are usually first seen by the family physician, and it may be worth while to consider a few general principles bearing upon their management in the early stages. Some of the cases are self-limited and would do well under almost any treatment; others, while apparently mild at the outset, may soon become severe, pathological changes supervening which later treatment may be partially or wholly unable to remove. To serve such patients well involves a definite diagnosis and a conception of the pathology underlying the disease, to the end that the treatment advised may not only meet the immediate situation but prevent later unfavorable developments.

There is perhaps no class of diseases in which the correct management of the early stages counts for more than in the one under consideration. The eye responds acutely to all forms of irritation or infection, and inflammatory

Read before the Southern Minnesota Medical Association, June 23-24, 1919

changes take place rapidly. In acute iritis, for instance, plastic exudates are thrown out by the vessels of the iris, and if not prevented by treatment, adhesions form, fixing the iris in contact with the capsule of the lens. Vigorous treatment, applied early, usually limits or prevents these adhesions; the same treatment, undertaken some days later, often is ineffective, in which case the pupil becomes partially or completely closed, the intraocular tension may rise, inflammatory symptoms persist, and the disease is likely to run a tedious, painful course, terminating in more or less damage to the eye.

In acute glaucoma the time element in diagnosis is of even greater importance, as the high intraocular tension, if not relieved, quickly injures the optic nerve, with resulting blindness. Vision fails rapidly in these cases. If medical treatment is used and does not promptly improve the situation, operation is required. It is often a matter of hours, rather than days.

The above facts suggest the importance to the patient of a definite early diagnosis, and that the treatment adopted should be based upon the pathological possibilities of the disease rather than upon its clinical appearance at the moment.

The commoner diseases encountered in which confusion of diagnosis is likely to arise are acute glaucoma, iritis, and ordinary acute conjunctivitis. Until these diseases are carefully differentiated, no intelligent treatment is possible. Usually the diagnosis is not difficult, if the principal symptoms are kept in mind and the examination systematically made. Remembering a few important points, one disease at a time can be excluded until it is definitely known that a diagnosis can or cannot be made.

Those accustomed to making eye examinations are aware that acute glaucoma is relatively not a rare disease; they further know that little safe progress can be made in the conduct of the case until the presence or absence of this disease is determined. The one striking symptom of acute glaucoma, easily recognized, and not seen in other acute inflammations of the eye, is the dilated pupil, which is decidedly larger than that of the unaffected eye. This dilated pupil is a danger signal which cannot be safely disregarded, and a diagnosis that does not account for its presence is open to question.

The vision is profoundly affected; sometimes only perception of light remains at the end of a few hours. Palpation of the affected eye will show it to be decidedly harder than its fellow. These three symptoms of acute glaucoma are easily remembered, quickly determined, and, if present, at once put the patient in a class requiring prompt action if vision is to be saved.

Having eliminated acute glaucoma, it should be determined whether the patient has iritis or conjunctivitis, and to do this careful observation of the appearance and behavior of the pupil is necessary. The dilated pupil of acute glaucoma is not found in these latter diseases. In searching for evidences of iritis, we examine the pupil closely as to its circularity. If it is not perfectly circular, inflammatory adhesions probably have taken place between the iris and the lens, altering the shape of the pupillary opening. With a good light these can generally be seen. If doubt exists, the pupil should be dilated, when, if adhesions have formed, the pupil, as it dilates, commonly takes a more or less irregular shape, the iris remaining adherent to the lens capsule at one or more points. In mild forms of iritis the pupil upon dilatation may at once become perfectly circular, but even in these instances the ophthalmoscope usually shows pigment spots upon the lens capsule, at points where the inflamed iris had been previously attached. The color of the iris is often dulled by the inflammation. Vision is not much affected in the early stages of iritis; later, if there is an accumulation of inflammatory exudates, the vision becomes impaired.

The use of any drug which dilates the pupil is highly dangerous in acute glaucoma, hence we have here an added reason for first excluding this disease—that we may be free to dilate the pupil to determine whether evidences of iritic inflammation are present. If nothing is found, the dilated pupil is merely a temporary inconvenience.

There is a form of iritis sometimes called 'quiet iritis', from the mildness of the symptoms, which is accompanied by very little or no pain, or inflammatory reaction, not much complaint being made except that the eye waters and is irritable. These cases will be

overlooked, and will be treated as something else, unless careful examination is made and the pupil dilated, when adhesions or pigment spots will generally be found.

Having by the foregoing procedure excluded acute glaucoma and iritis, we may conclude that we are dealing with acute conjunctivitis.

As aids to diagnosis the patient's subjective symptoms are helpful. Acute glaucoma and iritis are usually accompanied by severe aching pain, often felt in the brow or temples, while in conjunctivitis the sensation is rather one of smarting, burning or scratching. Severe pain, therefore, suggests the probability of something more than inflammation of the mucous membrane. The discharge in iritis and glaucoma is thin and watery; in conjunctivitis it is more profuse and mucopurulent, and accompanied by decided evidences of inflammation of the mucous membrane of the lids.

Briefly then, the purpose of the examination of an inflamed eye would be first to exclude acute glaucoma by recalling the dilated pupil, badly impaired vision and increased tension of the globe, which identify it. If glaucoma is absent, this may be followed by careful inspection of the pupil for adhesions, dilating it if necessary, to determine whether the inflammation is due to iritis or to conjunctivitis. An examination made somewhat after this manner should furnish helpful evidence as to the presence of serious disease, and afford a better ground upon which the patient may be advised as to the further management of the case.

It is, of course, not to be assumed that the above comparatively simple procedure exhausts all means of diagnosis. Only the essential steps are mentioned necessary to be taken to arrive at even a provisional diagnosis. If the examination in this manner leads to no definite conclusion, the patient should be given the benefit of consultation and more comprehensive examination.

Mention should be made of the occurrence of iritis, conjunctivitis, and occasionally glaucoma as complications of other diseases and injuries of the eye. This happens frequently and is unfortunately often overlooked. For the purpose of treatment it is highly important that these complications be recognized. This

is noticeably true, for instance, in such conditions as traumatism of the eyeball and corneal disease. In ulcer of the cornea the toxins penetrate to the aqueous, exciting an iritis which, if untreated, retards recovery and leaves the pupillary region filled with exudates and adhesions.

It is not uncommon for traumatism to precipitate an attack of acute glaucoma. In fact, glaucoma, or at least increased intraocular tension, which is the first stage of glaucoma, occurs in so many conditions affecting the eyeball that good management requires it to be kept constantly in mind.

Conjunctivitis as a complication, if untreated, is not so disastrous as is the case with iritis or glaucoma, yet its suitable treatment hastens the recovery of associated diseases.

With reference briefly to the treatment of acute inflammatory diseases of the eye, there are some authorities who mention good results from the use of such drugs as eserine and pilocarpin in acute glaucoma. My own experience with medical treatment in this disease has been disappointing, and operation has been found necessary. However, this may be due to the fact that the patients have not been seen early enough. The effect of early operation is so satisfactory in acute glaucoma that it would scarcely seem justifiable to jeopardize vision by delay, unless medical treatment gave decided immediate improvement.

In iritis, the one most valuable factor in controlling the disease, occurring primarily or as a complication, is the use of atropine. The pupil should be dilated to the maximum at the earliest moment and the dilatation continued. This relieves the hyperaemia, controls pain, and limits or prevents damage due to adhesions and exudates in and about the pupillary space. The addition of dionin is helpful. Heat, salicylates and mercury all have their place. Constitutional disease must be cared for; and, in accordance with present views of etiology, diseased teeth, tonsils, or other sources of focal infection should receive suitable treatment. The severity of the symptoms will depend to a great degree upon the stage at which the diagnosis is made and the treatment begun.

Ordinary acute conjunctivitis, which is the only form considered here, usually responds

readily to treatment with boric acid, zinc, silver preparations, etc. Other types require management according to their etiology and the conditions present.

In conclusion, it will be observed that the presentation of this subject contains nothing new. Certain symptoms and refinements of diagnosis, bacteriological and otherwise, have been intentionally omitted, the purpose being merely to suggest to those who may feel interested, the obvious advantage of deciding the diagnosis and treatment at an early, rather than a late, stage of these diseases, and to commend the use of a few simple steps in diagnosis. Early diagnosis and suitable treatment will prevent blindness in a certain percentage of cases, and will shorten the course, modify the symptoms and improve the end results in many more.

MEDICINE, FORTY YEARS AGO; GLANCES IN RETROSPECT, AND SOME NOTES OF COMPARISON WITH LATER PERIODS*

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As one who still claims some **vested rights** in his profession, I realize that acuity of vision depends, in no small measure, on daily and actual contact with modern progress. Consequently, when requested to address you it seemed more fitting, to me, to attempt something that had formerly employed my greatest energies and held my deepest interest and concern. Hence this caption, and, therefore the sequel.

It is obvious that any retrospect of medicine dating back forty years that I am permitted to present to you at this time, necessarily must be both cursory and casual and only in a narrow sense analytical.

The picture I have attempted to draw is almost entirely from memory. Therefore I hope you may grant me your indulgence should it prove none too clear.

I would say also that it is of the country rather than the city I have dealt, but it is a

fair presumption that the difference is one of degree rather than of fact.

Going back to my pre-graduate days it might invoke your interest to consider the status of medical education in existence in this country at that time. The number of really first class schools was small, in comparison with those conducted as commercial ventures and the non-descript class to which it would be sheer flattery to refer in any other terms than mere diploma mills.

Preparatory education, even among the foremost schools, was largely a matter of personal judgment on the part of the aspiring student. True, a certain number were well equipped with full college attainments while it was equally true many others possessed but little more than a common school preparation, with all its limitations.

The time spent in the medical schools varied from five to nine months, during a period of two years, prior to 1880. At that time there was no Association of American Medical Colleges to prescribe entrance requirements or necessary periods of study, and the very few states possessing medical laws were lax in their requirements and enforcement. Later, when several of the states enacted laws to regulate the practice of medicine many men were enabled to obtain a license to practice, based on recognized claims that they previously had been practitioners of medicine for a certain number of years, even though they had spent only a few months of study in a medical school, and never possessed an M. D. degree. Occasionally I note, even at this date, in the obituary columns of the A. M. A. Journal, where some old-timer has passed on to his reward and, in lieu of stated college degrees, his record stands "licensed to practice"—a solemn commentary on by-gone days.

The curricula of the schools were based on such fundamentals as; Anatomy, Physiology, Chemistry and Materia Medica which were regarded as didactic studies. Practice of Medicine, Surgery and Obstetrics were considered clinical or practical chairs in the faculties. Adjunctive to these latter three were; Pathology, Ophthalmology, Gynaecology and Medical Jurisprudence. There were still others but as they received only minor attention we

*Read before the Upper Mississippi Medical Society on August 26, 1919.

will omit their enumeration. I would have you mark well, however, that Biology and Bacteriology held no place in the teachings of those days.

The various chairs were held, in most instances, by men devoting most of their time to the active practice of their profession.

The newness, extent and growth of our country constituted a great demand for physicians and in large measure accounts for our former low standards in medical education, as compared with these of Europe for the same period.

Having thus briefly referred to the opportunities for the mental equipment of medical men of forty years ago, some interest will also attach, perhaps, to an equally brief consideration of the physical aids and appliances at their command.

The means of locomotion and transportation available for the doctor in towns, villages and country districts consisted of the "doctor's gig," his trusty horse and saddle bags and not infrequently "Shank's Mare."

The public's means of "calling" for, or communicating with medical aid was almost entirely by messenger.

The condition of the roads was variable, according to time, place and the seasons. They were never good, seldom fair and frequently only passable for the equestrian or pedestrian.

With such means of communication between physician and patient, it should not be difficult for you to imagine the perplexity of the former or the anguish and suffering of the latter, at opposite ends of interminable miles of infernal roads. Perchance it is the dead of night and only an uninformed and unimaginative messenger to direct the way, often without ability to shed enough light on the case to afford a long range diagnosis.

The doctor's office was usually in his residence or an adjoining annex, and his wife, frequently, in addition to her domestic duties, acted as office girl, nurse and assistant, and during her partner's frequent absence on visitations, as counselor, sympathizer and all-round entertainer.

Not infrequently the village drug-store had back rooms that were official headquarters for the M. D. and many a quiet game of "draw," but "tell it not in Gath."

The office was seldom a thing of beauty and order. A few tomes of ancient medical lore might grace some small shelf, while larger ones held the drugs from which the doctor's prescriptions were personally compounded. It was innocent of the pervading presence of the ubiquitous revolving nebulizer of later days; unadorned of nicked sterilized apparatus and shiny, showy suggestive surgical tools; and ungraced by the sedate uniformed modern nurse. In fact it was a composite—a place of homely utility, a den for leisurely hours.

It would be a slight to history as well as rank injustice to the doctor of the old school not to mention his armamentarium in some detail; to show its paucity, indicate the handicaps and, withal, to afford comparison with his more modern and favored brethren.

In the matter of drug therapeutics there was an enormous range, for many drugs and remedies had, with tortoise feet, come down the centuries and clung to the pharmacopoeia, with the tenacity of barnacles, unpurged by scientific pharmacology. There was one heavenly boon, however, freedom from the pernicious activities of advertising Manufacturing Pharmaceutical Companies and proprietary medicine concerns, with their bold claims—garbed in pseudo-scientific fustian—claims that are an insult to an enlightened profession and as unsubstantial as those of some voodoo doctor.

Pardon the digression but, with many others, I feel deeply resentful at these gratuitous insults to the intelligence of the modern medical man, by these bandits in our midst, with their unveiled insinuations that most of us have no initiative or ability to think for ourselves, when entrusted with the precious care of our patients. The known weakness of certain members who court such advances, instead of repelling them, should only add to our general loathing.

Having thus hurdled the years, we must retrace our steps. With a multitudinous pharmacopoea, a vague uncertainty as to efficacy, chemical and physiological action and reaction, it is understandable how the shot-gun prescription had such a wide vogue. It was comparable to our modern machine-gun fire. Surely some of the numerous missiles must hit the seen or unseen foe. The hard-headed practitioner however was inclined to depend on a few drugs and

remedies that clinical observation and experience had taught him were fairly sure of producing desired results. Those were, truly, the days of clinical medicine. Practice was mainly based on bedside observations and a limited knowledge of physiology and gross pathology. Laboratory experimentation and observation were conspicuous by their absence, in the main. The body fluids and secretions were exempt from anything serious in the way of analysis, on the part of the practitioner. Occasionally the urine was tested for albumen and sugar and the sediment searched for casts, whose true significance was infrequently understood.

No physician's outfit was complete without a few pairs of dental forceps, for, that early specialist in surgery, the dentist, was much of a *rara avis*, outside of the larger towns and cities. The turnkey, in company with the phlebotomy lancet and the leach, were already as dim spectres on the horizon of the past, while the cupping apparatus still maintained an uncertain existence.

For all auscultatory purposes the single-tubed wooden stethoscope still held sway. The binaural made its appearance during my school days. The clinical thermometer preceded the binaural stethoscope by a few scant years, but was still so much of a novelty that it was often produced with a flourish that attested pride of ownership in an instrument of real precision.

Obstetrics and gynecology called for something more than bare-handed recognition of their importance by the enterprising practitioner and this was manifest in the ownership of O. B. forceps and a cylindrical vaginal speculum.

Some closet or box contained all of the doctor's improvised or other antiquated fracture splints.

Other physical aids and instruments of more or less minor importance might be enumerated but we will content ourselves with final mention of the time-honored amputating case by means of which nearly all of the surgery was done and without which no medical man could consider himself fully equipped. It was the complement of the family bible in the home and about as often referred to.

In those days among all the handicaps that impeded the physicians work, complete lack of trained female nursing, the bacteriological laboratory and the scarcity of hospitals were

the greatest. Throughout the country there were only a small number of hospitals and these were almost entirely in the cities. Their standing, in public esteem, was very low. The causes for such unpopularity would now be easily understood and as easily removable. Then they were largely ineradicable, because they were not understood. Science had not advanced sufficiently to permit of their discernment and removal. Perhaps no better opportunity will be afforded to review some of the causes of inefficiency and unpopularity of the hospitals of but little more than a generation ago.

The structures themselves were unprepossessing to the eye and extremely inadequate as to service and comfort. The hospital architect was only one of the innumerable variety of specialists of to-day that had never been heard or thought of, in that age. Sanitation and Hygiene, with all that their august names imply, were not yet out of their swaddling clothes. Antisepsis, that mighty progenitor of asepsis, disinfection and sterilization, godfathers, all, to every branch of modern surgery—was heralded to the world, about 1883, by Joseph Lister of Edinburgh, afterwards Lord Lister of London.

Segregation and isolation were more honored in their breach than observance, their application being confined to diseases of established contagiousness. The names Domestic Science and Dietetics held no scientific meaning and therefore no assigned place in organization. Such nursing as prevailed was untaught or self taught only. The presence of trained and graduate female nurses would have gone far in compensating for all other short-comings, deficiencies and inefficiencies but the curtain had as yet not been raised for their appearance on the stage.

If you will at this time permit me, I would like to express my appreciation by saying that apart from Motherhood, her divinely appointed mission on earth, there is no sphere where woman more preeminently shines than in her trained ministrations to the sick.

The medical staff was well organized and generally efficient in only a comparative few of all the hospitals.

Perhaps this incomplete recital will suffice to show why the hospitals were unpopular—so unpopular, in fact, that there still remains to-day

a dread in the minds of some timid few who continue to bear the seeds of an earlier distrust. Meanwhile we must remember and justly concede—men may not be charged with ignorance if fairly possessed of the wisdom of their day and generation.

A while back I spoke of the handicaps to the practitioner, because of lack of trained nursing and hospitals; withal we may conceive, how much better and with greater ease and comfort for himself he might have cared for his work had the hospital facilities of the time been available to him.

Time presses and we have not yet seen our doctor really at work. Let us accompany him to the bedside of a few hypothetical patients.

Case No. 1—Has been diagnosed ague or malaria on the symptomatology with scant reference as to history, beyond acknowledging residence in a miasmatic environment, which has yielded the paludal or *marsh miasm*, which is held accountable as the causative agent. Treatment: Preliminary and generous dose, or doses, of calomel, to be followed by quinine, in daily amounts of 20-60 grains, for an indefinite period.

For some time the profession had been hearing more or less about the possibility of protozoan causation in the development of malaria, but it was not until 1885 that the plasmodium malariae was definitely announced and later the infective mosquito (*anopheles*) fixed upon as the real communicating agent. The fogs obscuring a definite etiology have been dispersed while the treatment has not been materially modified, because time and more accurate scientific observation have established its reliability and soundness.

Case No. 2—Patient prostrated with marked evidence of an acute abdominal pathological condition. Etiology; unassignable. Symptomatology; abdominal pain, of more or less acute onset and not well defined as to locality; tenderness, but, apparently, not localized; temperature and pulse not greatly disturbed or far from normal; digestive tract, nausea and some vomiting with bowel somewhat confined; some tympany. Diagnosis; Uncertain; probabilities acute enteritis ("inflammation of the bowels.") peritonitis, perityphilitis, or early stage of intestinal obstruction. Treatment, palliative and expectant.

Many of you, I am sure, will say, "Why these are the 'earmarks' of a case of acute appendicitis and at least a differential diagnosis should not have been difficult." But hold your fire and please remember, it is an act of grace to be charitable and an important part of wisdom to be logical. Consider that in the days when our doctor studied anatomy, the appendix was noteworthy only as a "vestigial remnant" and he never heard of it again. Also, that he quite probably had never viewed the abdominal interior of a living subject. Further, that it was not until about 1888 that Fitz of Boston made it clear to all of us that it was the appendix and not the caecum that was responsible for tenderness, tumefaction and pus in the right iliac region. It was still later that McBurney gave us the geographical boundaries of the appendix, so to speak.

Case No. 3—Phthisis, or pulmonary consumption. History: One or both parents or one or more brothers or sisters living in the same household had died of the disease. Etiology—various theories have been advanced, but no actual facts established, as to the real causative agent. Symptomatology—as usual for a case in the middle stages. Diagnosis: phthisis—based mainly on percussive and auscultatory findings, together with loss of weight, night sweats and hemoptysis. Treatment: Cod liver oil, expectorants and eroton oil painted over the upper portions of the chest. Advisory—chest protection, avoidance of draughts and cold night air and strenuous or exciting things that might induce hemorrhage and by no means must the patient be informed that he has "consumption". His natural hopefulness must be humanly encouraged. No admonitions, of course, as to care and disposal of sputum or the communicability of the disease.

It may be well worth while to consider, in this relation, the respective positions of the medical practitioner of then and now. I will quote you briefly, from the text book on Practice of Medicine published in 1881 that we, as students in our school mainly used:

"Primary tuberculosis depends on a peculiar diathesis, often inherited, but not infrequently acquired, is liable to be produced by unfavorable hygienic conditions; but that more or less of this tendency exists wherever true tubercle

occurs. Whether this tubercular material is possessed of specific germs, capable of being communicated as a contagion, is at present undecided." In 1882, Robert Koch announced the discovery of the tubercle bacillus.

Many of you will remember how we continued to cling to our antiquated ideas and long denied or refused the light that was thus shed on this terrible malady, cryptic hitherto as to origin and transmission. How we refused to believe in the modern methods of prevention, amelioration and cure. I well remember in reading, many years ago, Maudsley's *Gulstonian Lectures* delivered in 1870 on "Body and Mind" the following: "We cannot help thinking of the strange hopefulness and the sanguine expectations of the consumptive patient who, on the edge of the grave, projects without a shadow of distrust what he will do long after he will have been 'green in death and festering in his shroud.'"

This naturally connotes two ideas; universal observation of a mental phenomenon that was as common as the disease itself and, in contradistinction, the hopelessness with which the physician was prone to view such cases.

Case No. 4—Vaccination against smallpox. Operation: scarification without preparatory cleansing, and inoculation with virus obtained from the scab of another patient. I cite this hypothetical case mainly to show that this was the only disease where the physician knew how to exercise preventive medicine by introducing into the blood a vaccine substance that would act as an assured prophylactic. Also, how his innocent ignorance of sepsis has made it painfully difficult to practice this beneficent measure down to the present day. Verily, even in the midst of much education and enlightenment such mental obliquities as prejudice and superstition die a lingering death.

With these few imaginery and perhaps illy chosen cases, it might be of profit, certainly of personal interest, to continue with our old time friend to observe his work and share in his reflections. I wish we might be permitted to extend our observations with him to his cases of typhoid fever, typhus fever, diphtheria, tetanus, cholera, bubonic plague, syphilis and others whose etiology and, to some extent, pathology were as sealed books and treatment,

of necessity, empirical. How gladly would we sympathize with him in his searchings after the truth and humbly would we confess our present-day light and opportunities.

You will have inferred, and properly, that the old-time practitioner had to do most of his work alone. He sometimes consulted with a brother practitioner, if he was available, and sometimes called in the surgeon or ophthalmologist, but generally, because he must, he depended on his own resources and abilities. If he was "worth his salt" as we say, he succeeded remarkably well considering his day and generation.

I believe the general practitioner continues today to hold the premier place in the medical profession, notwithstanding the rapidity with which specialism has come to the forefront. The specialists quite naturally migrate to the cities. In the towns and small cities "group practice" seems to have an increasing vogue and, perhaps, not illogically. But who will care for the villages and countryside that contain the greater share of our population? The general practitioner, of course. Therefore, let us see to it that he is fully prepared and equipped for his multifarious duties. All-round work develops the faculties of the man who thinks as he works. Specialism, begun in early life, often has a dwarfing effect.

I noted the other day where, recently, our old-time friend Dr. Osler was apparently an important participant in certain dialectics concerning the humanities and science. On the question of science he said, in part: "The extraordinary development in modern science may be her undoing. Specialism, now a necessity has fragmented the specialties themselves. The worker loses all sense of proportion in a mass of minutiae. Applying themselves early to research young men get into back waters far from the main stream. They quickly become hypercritical and the smaller the field the greater the tendency to megaloecephaly. From over specialization scientific men are in a parlous state." When it comes to thinking and saying what he thinks, Osler is one of the peerless men of our profession.

Personally, I would ask what tends to promote specialism? Is it an ardent love for concentrated study and effort, backed by an altruistic feeling that work conscientiously done is sure of

a fair reward; or is it commercialism, combined with a desire for minimized labor? Doubtless the true answer may be found within the question itself.

A word as to the social status of the doctor of the old school. His was one of the only three learned professions, recognized as such—Medicine, Law and the Church. He was untinctured with commercialism. He was devoted to his work, which he pursued with a singleness of purpose, characterized by a broad humanity and a charity known of all men. There were few men in his community who so widely shared the trust, confidence and love of his numerous friends. For a further magnified appreciation, I would confidently and particularly refer you to Balzac and his "Country Doctor"; likewise, to Ian MacLaren's "A Doctor of the Old School."

Perhaps you would have preferred to peer into the future, or more tersely have cultivated the present, rather than to have so lengthily delved into the past. Be that as it may, it is not all of progress in medicine to neglect the past, for enduring reputations have, not infrequently, been largely gained by harking back to the laborers of other days, some of whom barely missed permanent renown, either through unwisdom or inefficient means for completing their work.

It might be a fortunate thing, indeed, were we possessed of a medical Kipling, who would write for us a periodical "Recessional"—"Lest we forget, lest we forget."



DIPHTHERIA "T. A."*

By CARL B. DRAKE, M. D.
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Almost a century ago Bretonneau first recognized diphtheria as an entity among the various forms of sore throat and gave it the name diphtheria. In 1858 the name was first used in the vital statistics of New York City and immediately after this the mortality rate for diphtheria began to markedly increase as such diagnoses as inflammation of the throat, sprue and angina began to be recognized as diphtheria and so reported. In 1883 Klebs discovered the rod-shaped bacillus and a little later Loeffler's experiments with guinea pigs proved them to be the etiological factor and the entity of the infection was established. Finally membranous croup has slowly and rather painfully come to be recognized as a form of diphtheria.

With the introduction and general use of diphtheria antitoxin in 1895 came a sudden drop in the death rate which has gradually continued as the antitoxin has won for itself universal recognition and as general use as any equally conclusively proven specific remedy ever will. The death rate in New York city alone was cut in one year from 158 per 100,000 in 1894 to 105 in 1895 and this rate has gradually been reduced to about 21 (officially 21.4 in 1910) probably thru the serum alone.

In spite of this marked reduction the deaths from diphtheria in New York City alone averaged 1,258 for the years 1913-15 and in the United States the yearly average recently has been 23,540. In New York the figures for the years 1901 to 1917 showed that 77 per cent of deaths occurred in children under the age of five. In spite of culturing, quarantine, the use of serum both as a curative and prophylactic measure this malady exacts a toll equaling that of scarlet fever and measles.

To meet this situation considerable work has been done notably in Germany and this country in an endeavor to find a means of producing an active immunity in human beings.

Injections of diphtheria antitoxin will produce a passive immunity to the disease for a period

*Presented before the Ramsey County Medical Society, September 29, 1919.

of two to three weeks and in epidemics the prophylactic injection of Schick positive individuals is effective in controlling the morbidity of the disease. The short period of immunity produced in this way and the possibility of producing a serum sensitivity make this procedure anything but ideal.

Active immunity has been produced in animals for many years and the repeated injection of horses with the diphtheria bacteria has been the method of producing antitoxin commercially.

In 1912 von Behring first used a mixture of diphtheria toxin and antitoxin so called "T.A." for injections in children in an effort to produce an active immunization. Progressively larger doses were given every other day until a local or general reaction was produced. The dose producing the reaction was repeated in ten days. The early reports by various German writers were rather unfavorable until it was recognized that the active immunity production was a process requiring two or three months rather than as many weeks. The one in this country to take up the problem was A. Zingher and his work with the New York Health Department has been most promising. A theoretical consideration of this method of injecting a poison and its antidote in the hope of producing more antidote is rather difficult to follow. In one specimen of toxin used by Zingher 0.0023 represented a minimal lethal dose for a guinea pig. L+ or the amount of this toxin necessary in combination with one unit of antitoxin to kill a 250 gram guinea pig in four days was 0.27 an amount over one hundred times as large. Zingher used three different mixtures of T. A. in his human inoculation. One, an overneutralized mixture represented one unit of antitoxin and 50 to 65 per cent L+; a second neutral mixture 65 to 80 per cent L+; and a third which he recommends as best suited, represented 80 to 90 per cent L+ and is slightly toxic. This slight toxicity is not alone in producing the immunity as the neutralized and overneutralized also produce antitoxin in the blood of animals and human beings. The combination of toxin and antitoxin is apparently not like a chemical reaction and in fact has been found to be a reversible reaction.

Zingher showed that by giving a single in-

jection of a mixture of diphtheria T. A. to a horse and testing the blood daily an appreciable increase in antitoxin was discoverable on the sixth day and a maximum content was reached on the twelfth day. In the guinea pig two months were required for antitoxin production.

Under Park and Zingher's direction some 4,000 individuals have been injected with T. A. mixtures. These have been mostly children in institutions. The development of a negative Schick denoted a successful immunization. So far no case successfully immunized as shown by the Schick reaction has developed diphtheria although a considerable per cent have become carriers.

Robertson of the Chicago Health Department reports similar results. He states that "In a series of about 2,500 school children, all of whom had been exposed to diphtheria, only four developed the disease; three of these occurred within one month after the first injection, two had received only one injection, the fourth case had received the three injections and developed the disease three months later. All of these cases were very mild, made a rapid recovery and the course of the disease seemed to have been influenced by the prophylactic treatment given."

The technic followed by the New York Health Department is to inject three doses of one c.c. each of a T. A. containing 85 to 90 per cent L+ subcutaneously at weekly intervals. In Schick positive cases one injection produces some 80 per cent negative Schicks in about three months, two injections 90 per cent and three injections 97 per cent. In some cases the immunity develops quickly. In one series of 90 cases Zingher found twenty-two per cent had become immune in three weeks. In a majority of cases three to six months is required.

The Schick test has become well established as a reliable index of the existence or nonexistence of immunity to diphtheria. Numerous percentage tables of Schick reactions according to age are available and all pretty well agree with Schick's original figures. He found 7 per cent positive reactions in the new-born, 43 per cent in the first year, 63 per cent between the ages two and five and 50 per cent between five and fifteen years. Zingher's series of 497 cases showed 18.7 per cent positive for the first six

months, 52.3 for the second six months, 46 for the second year, 35 for the third and fourth years, 18 for the fifth and sixth year and 12 per cent for the seventh and eighth year.

It seems well established that most infants come into the world with an immunity to diphtheria directly inherited through the placental circulation, possibly in certain cases from the mother's milk. This immunity lasts in a majority of cases only six to nine months. Mothers with positive Schicks never according to certain statistics have children who are immune. An immune mother however may have a Schick positive child or one who is likely to become so.

The high mortality below the age of five and the existence of a high percentage of positive Schicks during these early years of life indicate that infancy is the period of life when a special effort to immunize should be made.

T. A. injections seem particularly favorable for use in the first years of life. In infancy both local and general reactions are the exception and only some ten to twenty per cent react locally and with a temperature to 100 or 103 degrees in childhood. The older the individual the greater the reaction and in adults a marked reaction, local and general may result. This is probably due to the more frequent existence in adults of a sensitivity to protein in general. While the reactions in adults may be quite severe that in children is no worse than that in small pox vaccination. Individuals showing a pseudo-Schick reaction are likely to react more markedly to the T. A. and of course having a negative Schick need not be treated.

Robertson states that no lasting ill effects have followed in any case of the 7,500 injections given by the Chicago Health Department. Some of the children had a rise in temperature and feeling of malaise for twenty-four to forty-eight hours. Out of this number of injections only forty-two children failed to attend school on Monday following the injection of the previous Friday. Those severe reactions were in children over twelve years of age.

Zingher recommends the active immunization with the full dose of 1 c.c.T.A. three times at weekly intervals of all children under 18 months of age. If these children have an immunity it will be increased and if not it will be

produced. The arm or below the angle of the scapula is the choice site. After the age of 18 months he has found the Schick test in the vast majority of cases remains constant. After 18 months he recommends treating only the Schick positive cases with T. A.

The active immunity induced Zingher has shown to last three years and a few have remained immune even after four years with indications that the immunity is permanent. None have lost their immunity so far.

What is the present status of T. A. immunization? It is possible to produce an active immunity against small-pox and typhoid. Universal vaccination against small-pox is advocated by the medical profession in general. That against typhoid only when there is an increased hazard. Typhoid is not nearly as prevalent as small-pox but causes more deaths according to the United States census bureau report for 1917, viz: 10,113 deaths compared to only 204 due to small-pox. Diphtheria on the other hand is more prevalent and causes more deaths than typhoid and small-pox combined (12,453 for the registration area in 1917). The need for some preventative measure is apparent. The trial given T. A. by both the New York and Chicago Health Departments has proven its value, not in treating an epidemic but in preventing epidemics in children's institutions. The material for the Schick test and T. A. itself have just recently been put on the market in standardized form by both Parke, Davis & Co. and Lederle. The former disadvantages of instability and complex administration have been overcome. The success so far reported entitles the method to a fair trial by the medical profession particularly in institutional work. If further trial shows that a permanent immunity is established and the present findings regarding harmlessness and the high percentage of immunity production are confirmed, universal vaccination with T. A. should be adopted.

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- Public Health Reports. Vol. 34 No. 20.



MINNESOTA MEDICINE

Owned by

The Minnesota State Medical Association.

PUBLISHED BY ITS EDITING AND PUBLISHING COMMITTEE

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Minneapolis

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All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal itself, not to individuals.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: \$3.00 per annum in advance. Single Copies 25c
Foreign Countries \$3.50 per annum.

Vol. III

February, 1920

No. 2

EDITORIAL

THE FUNCTION OF MINNESOTA MEDICINE.

Minnesota Medicine is starting on its third year. Its excuse for being is mainly to make available to the profession the experience and knowledge of medical men located for the most part in Minnesota.

Being the official organ of the Minnesota State Medical Association, the Southern Minnesota Medical Association and the Sioux Valley Medical Society, all papers of interest and value to the profession which are presented before these societies and in addition any similar papers from other sources, including the various county societies, will be published in Minnesota Medicine. Obviously all papers presented cannot be published. Where duplication in regard to subject material occurs or where in the judgment of the Editing and Publishing Committee matter submitted is not of sufficient value or tends to the formation of faulty conceptions, publication is denied. If all papers submitted were published our issues would be two or three times as large as at present and the standing of our State Journal would necessarily suffer, to say nothing of a prohibitive increase in the expense of publication. While Minnesota Medicine is a paying proposition to the State Association, it could very easily become a financial burden. This added expense could be met by lowering the bars established by the American Medical Association regarding advertising. This would

be a backward step and put the journal in a lower class with various other state and privately owned journals which consider the dollar more important than bona fide advertising.

In order to bring proceedings of the recent meetings of the State and Southern Minnesota Societies more promptly before our readers, the next issues will be considerably larger than usual. This will be in line with an effort to avoid allowing articles to become stale. Issues appearing during the summer months may be inversely smaller than usual.

SOCIALIZING MEDICINE

The relation of medical activities to the public is not Utopian. It is quite true that at present those who receive the best professional and hospital service are the wealthy and the paupers. The merely well-to-do, who, as a rule are discriminating in the matter of physicians patronize the best in any community. The rank and file of society which outnumber the above mentioned classes are not satisfactorily provided for.

In an effort to better this situation numerous methods have been proposed at various times and a few have been adopted. Germany was the first to establish compulsory state medical insurance. There, each employee, by the payment of a small sum each week, became entitled to a physician's services and a certain number of weeks in a hospital each year.

England a few years ago instituted a compulsory state health insurance which has proved anything but satisfactory to the public or the medical profession. Only about a third of the population was affected, hospital care was not included and medical fees were ridiculously small.

The Lancet of Oct. 11, 1919, called attention to a scheme proposed by Dr. David McKail and Mr. Wm. Jones of Glasgow and worked out most carefully for the organization of physician, clinic and hospital for the care of the sick as provided by state insurance. This scheme is based on an organization of activities made necessary and adopted during the war period in Glasgow. A population of one hundred thousand is taken as a unit and the plan is to organize a staff of fifty-three physicians, some rated as seniors receiving \$4,000 to \$4,500 a year, the

remaining juniors at \$2,500 to \$3,500. Each physician works thirty-three hours a week and the different branches of medicine and surgery in a central clinic, and outside calls are systematically provided for. This system is proposed in an effort to improve the medical situation in Glasgow.

The American medical profession would do well to study the medical situation in Great Britain and make an effort to prevent the repetition of a similar situation in our own country. If state medical insurance is to come we must be made ready with a constructive plan for handling it and protect ourselves.

The Governor of New York has announced that at the coming session of the State Legislature an effort will be made to pass a bill, backed by the New York Federation of Labor providing for compulsory state health insurance. The Medical Society of the State of New York has gone on record as unanimously opposed to any law instituting a system of compulsory health insurance.

The outcome of this clear cut fight will probably determine its future course in other states.

While such a law would not nationalize the medical profession to the extent of eliminating private medical services, it is a step in that direction and would place a large part of the medical profession in the pay of the government.

We are as a profession opposed to government ownership of doctors. It would be a calamity if an income of \$4,500 were the financial goal held out to the medical man. We, as a profession, claim more than a pecuniary incentive and the Hippocratic oath still is alive. But we are human. We believe the average financial return should be commensurable with the service rendered and this surely should be large enough to induce young men of high calibre to choose medicine as a profession.

In a recent address the former president of the American Medical Association, Dr. Charles H. Mayo, expressed himself in favor of a Federal Health Department. Editorially we have pointed out the desirability of a Federal Department and Cabinet Minister at Washington which would administer such activities as the Public Health Service, the licensing of physicians, vital statistics and various medical matters vital to the nation as a whole. It would

most emphatically not be our idea to have such a department take over all the medical work of the country. If that situation should arise we would feel much as a late great American expressed himself when asked by his son whether or not he should enter the army. He simply said that he had such confidence in his son's ability to make his way in the business world that he advised against it. We as physicians would with one accord advise our sons to choose some other vocation than medicine.

PHYSICAL EXERCISE

Redfield, in a recent article, argues that exercise of function, whether physical or mental causes an increase in power. In illustration he cites the hypothetical case of two young men, aged twenty, James the more intelligent and John the more muscular. James takes a position as helper in an athletic club and John enters a lawyer's office. At the end of ten years he asserts that their relations will be reversed, and James will be physically stronger and John keener intellectually. After another ten years the difference is more marked, and this law of increase in power accompanying use and degeneration following disuse will continue, he claims, up to some unknown age near the close of the individual's life.

If we admit that exercise of physical or mental functions is necessary for increase in power, the necessity for industry on the part of an individual whose vocation requires a predominance of either physical or mental activity is apparent. But more than this is necessary. A man who earns his living through the use of his brain requires a certain amount of physical exercise to keep his entire body, brain included, in trim, and the laborer needs a certain amount of mental exercise if he is to avoid becoming an entirely automatic machine. There is a point where over-use or strain occurs, which, of course, is detrimental to the organism. This point beyond which strain occurs can undoubtedly be raised by training. The straining point varies in different individuals.

Theodore Roosevelt was a good example not only of the benefit to brain from physical exercise, but of the development of both mental and bodily vigor through painstaking exercise. Starting in life with a physical equipment be-

low the average, he realized the necessity of physical robustness and acquired it through exercise consisting not simply of a few morning calisthenics, but often of several hours a day of walking, horse-back riding, boxing and the like.

In one of his letters to his oldest son, recently published, he shows that his view of the proper relation of athletics to study was quite sane. He believed that athletics, while a good servant, was an undesirable master; in other words should be used as a means and not be made the sole aim in life.

Roosevelt lived to be sixty. It is likely he would have reached three score years and ten, had he been a little less strenuous in his many activities. Whether he would have accomplished more or done more for his generation had he lived to a riper old age, is questionable.

We have all observed the effect of sudden change in habits of living as when a man gives up an occupation requiring strenuous activity and adopts a sedentary one. What changes occur in the physical make-up of the athlete leaving college or the discharged soldier returning to civil life, is difficult to determine. Often the nervous manifestations are very real and a moderate continuance of exercise is advisable.

The rapid dissolution of the elderly business man who for one reason or another is forced to give up an active career, is often noted by physicians. The explanation of this phenomenon may lie in the fact that such an individual has gone beyond the point where use develops power and has reached an age where disuse more rapidly results in degeneration.

The average Britisher takes more recreational exercise than we Americans, and has been accused of even going to an extreme in this direction. It is safe to say that the average American brain worker requires more physical exercise than he obtains in order to attain his maximum efficiency. This applies very decidedly to the medical profession.

PERSONAL RECOLLECTIONS OF THE LATE SIR WILLIAM OSLER

In the death of Sir William Osler the profession of Medicine has suffered, what will seem to the thousands who knew and loved him, an irreparable loss. Seldom can we hope to see so many admirable qualities united and basic in the character of a single individual. He was a great student, investigator and organizer, but above all this a man of high ideals and possessed to an extraordinary degree of the gift of making and holding friends. No man in the profession has done more to advance its highest aims, and the medical men of the United States especially owe to him a great debt for the impetus which he gave to the study and practice of scientific medicine and to the development of the great institutions for the teaching of modern medical science.

I first heard his name spoken by Dr. Sydney Ringer of London when engaged in post-graduate work there in 1890. He, while a student there at the University College Hospital, evidently had left in the minds of all who came in contact with him the conviction that he had a great future. Dr. Ringer said that he possessed extraordinary qualities, ideally adapted to both the practice and teaching of medicine, and that he, Ringer, was proud to have played a part, even though a small one, in his development.

My first meeting with this great man who was destined to become and remain for over twenty-five years my dear friend and benefactor, occurred in the early 90's shortly after his appointment as Professor of the Principles and Practice of Medicine at Johns Hopkins University when he gave an address to the medical students of the University of Minnesota on the occasion of the opening of old Millard Hall. His peculiar charm of manner and extraordinary power as a speaker aroused the admiration of us all and led me to accept his invitation extended at that time to visit Johns Hopkins Hospital as a special post-graduate student, there to receive the greatest clinical privileges I have ever enjoyed and to lay the foundations of an enduring friendship based, for my part, upon unbounded admiration and the warmest affection.

At this time the Medical School at Johns Hopkins Hospital had not been organized but a certain amount of formal post-graduate instruction



was being offered. This, however, was wholly disregarded by Osler in my case and I found myself enjoying all and much more than the privileges of an interne without any of the routine duties ordinarily associated with that position.

From the first day of attendance on, one was made to feel constantly the extraordinary contagiousness of the scientific enthusiasm of the Chief of the Medical Clinic and to appreciate that entire obliviousness of self-interest, extraordinary generosity, kindness, and self-sacrificing effort which played so large a part in making the institution at that time a students' heaven. The atmosphere was one of whole-hearted co-operation, scientific endeavor, unselfishness, and kindly effectiveness and was reflected in the attitude of every one connected with the Institution.

To an extraordinary degree the spirit of research permeating the Medical Clinic was combined with the utmost regard for the interests of the patient. All newly announced methods of respectable antecedents and endowed with any reasonable amount of promise of performance might obtain a trial but these had to undergo a critical sifting and could endure only when sound in substance and useful to the patient.

The clinics in Medicine held by the Chief were remarkable, as also were the bedside visits in hospital rounds, and both served to demonstrate the extraordinary erudition, quick perception, thoroughness, practical grasp, keen sense of humor, and abounding kindness of this great teacher and clinician.

One could not long remain in contact with Sir William Osler without realizing that his capacity for making and keeping friends and for inspiring deep affection in those at all intimately associated with him—whether as students or colleagues—arose not only from admiration for his qualities as a medical man and teacher but to an even greater degree from the extraordinary unselfishness and helpfulness of the man.

For years following my course of instruction at Johns Hopkins I made an annual pilgrimage to the Institution in order that I might make rounds at least once with the Chief, and I remember that on one occasion when prevented from staying over as planned until the Monday on which rounds should have been made he in-

sisted upon making an extraordinary tour of the hospital on Sunday morning in the face of what was known for many years in the East as "the great blizzard" rather than to have this annual custom violated.

It is no wonder that practically every honor which the Medical Profession could give was bestowed upon Sir William Osler*. His greatest achievement no doubt is to be found in the part he played in the organization of Johns Hopkins Hospital. It is impossible to measure the enormous influence for good or the stimulus which he imparted as teacher and associate.

When finally in 1905 he was made Regius Professor of Medicine by Oxford University, the bestowal of this highest honor in the gift of his Mother Country served to crown his remarkable achievements. It also served to fulfill the prediction made by a leading Canadian surgeon, who, on the occasion of the banquet of the British Medical Association in Montreal, at the first meeting held on this side of the water, warned those of us who were present from "the States" that we could not hope to hold Osler no matter how much we loved him for "he was only passing through the United States in bond."

To many of us who loved the man it seemed incredible that he should leave Johns Hopkins and equally so that he would find the environment of his new position suited to his temperament and needs. His departure was the occasion for a great banquet held in New York, given and attended by medical men from every part of the country who gathered to express their admiration and their regret.

As one of these I no doubt was unduly solicitous with respect to the wisdom of the change which he was making and on this occasion he told me that when I visited him at Oxford I would be convinced that he was right and I was

*1874. Professor of Physiology & Pathology at McGill University.

1884. Prof. of Clinical Medicine University of Pennsylvania.

1889. Prof. of Principles & Practice of Medicine, Johns Hopkins University and Chief Physician to Johns Hopkins Hospital.

1895. Served as President of the Association of American Physicians.

1905. Appointed Regius Professor of Medicine at Oxford University and Thomas Young Lecturer in Medicine at St. George's Hospital, London.

Hon. D. Sc. Oxford, Cambridge, Dublin, Liverpool, and Leeds.

L.L.D. McGill, Toronto, Aberdeen, Edinburgh, Yale, Harvard and Johns Hopkins.

D.C.L. Durham and Trinity University.

Hon. M.D. Christiania.

Hon. F.R.C.P. Dublin.

Foreign Associate of Academy of Medicine, Paris.

wrong. When a short time thereafter this happy event took place, I found myself installed, not in his home, but in his rooms at Christ's Church College, Oxford, where I was made to lead the delightful life of the College for several days with the result that I came to realize very quickly that he had done the correct thing and had found exactly the atmosphere and the field best suited to his needs and requirements at that stage of his career. He felt that the more strenuous and active period of his life had passed, sought and found a satisfying amount of teaching opportunity, did a limited amount of consultation practice and, enjoying daily a stimulating companionship and a beautiful and historic environment, he found time, material and opportunity for writing, researches into medical history and the full enjoyment of life and living.

One of my most valued recollections of Sir William Osler pictures him as he delivered the Harveian Oration at the meeting of the Harveian Society in London when President of that ancient and distinguished body of famous medical men. He was at his best on this occasion and his address was both scholarly and felicitous, holding the attention of his auditors from the first word until its close.

During all these years our correspondence had never been interrupted until the outbreak of the Great War when he was called upon to play a large part in the organization of the British Medical Service. Even then an occasional note arrived and only after the death of his only son who was killed in Flanders did these fail to show something of the rare humor of the man.

But a few weeks ago he sent a brave message to his friends on this side of the water from what was to prove his death-bed, and it was evident that neither grief nor bodily suffering could quench his indomitable spirit.

On the occasion of his departure from the United States he said in the course of his address at the great banquet hitherto referred to that he did not feel that he had accomplished much or that he was in any way worthy of the loving regard in which he nevertheless was glad to find himself held by his fellow-men, but that he could at least say that through his medical life he had tried to do his best every day.

No better tribute can be paid to him than to say in closing that, however great his scientific

achievements and however numerous the concrete examples of these, they are in the minds of those who knew him best quite lost in the beauty of his character and in the inspiration which he brought to the thousands of men, young and old, who had the rare privilege of his friendship.

CHAS. LYMAN GREENE,

CLINICS FOR PHYSICIANS OF STATE AT THE UNIVERSITY HOSPITAL DURING AUTO SHOW WEEK

Clinics, demonstrations and lectures will be given at the University hospital and laboratories of the Medical School at the University for alumni and other physicians of the State all day Thursday and Friday Feb. 5 and 6, 1920 of Automobile show week. This custom was established three years ago but on account of the war was omitted last year.

UNIVERSITY OF MINNESOTA

Program for Physicians' Days

Thursday, February 5th

- 8:30-10:45—Operative Clinic.....
 Drs. A. MacLaren and A. C. Strachauer
 (large operating room, University Hosp.)
 Operative Clinic, Ophthalmology.....
Dr. W. R. Murray
 (small operating room, Univ. Hospital)
 Cystoscopic demonstrations, including pyelography and allied procedures.....Dr. F. A. Olson
 (dressing room, first floor, Univ. Hospital)
 10:45-12:15—Gynecological Clinic
 Drs. J. C. Litzenberg and W. H. Condit
 (large operating room, Univ. Hospital)
 UrologyDr. F. R. Wright
 (small operating room, Univ. Hospital)
 9:00-12:00—Demonstrations in Surgical Laboratories
Dr. J. F. Corbett
 Surgery of the peripheral nervous system, nerve suture, intestinal suture, etc.
 10:30-12:00—General SurgeryDr. J. A. Johnson
 (University Dispensary)
 ObstetricsDr. R. T. LaVake
 (University Dispensary)
 11:00-12:00—Pediatric Clinic
Drs. F. W. Schlutz and Max Seham
 Luncheon, Minnesota Union.
 1:00- 2:00—Staff Rounds, University Hospital
 Medical Staff
 1:00- 2:00—Medical Dispensary
 General MedicineDr. J. P. Schneider
 Gastro-intestinalDr. C. B. Wright
 HeartDr. Olga Hansen
 Nervous & MentalDr. Angus Morrison
 1:00- 2:00—Skin Clinic, Dispensary.....
Dr. H. G. Irvine, Dr. G. M. Olson.
 2:00- 3:00—Medical Clinic.....Dr. L. G. Rowntree
 (Lecture room, Univ. Hospital)
 Pediatric ClinicDr. F. C. Rodda
 (Operating room, Univ. Hospital)
 3:00- 4:00—Ward Rounds. University Hospital
 Nervous & MentalDr. A. S. Hamilton
 PediatricsDr. Rood Taylor
 MedicineDr. R. I. Rizer

- 4:00-5:00—Demonstrations in Medical Laboratories
.....Medical House Officers
(University Hospital)
Grouping of blood.
Alveolar CO₂ and phthalein test.
Benedict for sugar.
Basal metabolism.
- 8:00 p.m.—University Medical Society, Institute of
Anatomy.
Influence of Atmospheric Humidity....
.....Dr. E. P. Lyon
Gastric Capacity of Children.....
.....Dr. R. E. Scammon
Local Anaesthetics.....Dr. A. D. Hirschfelder
Demonstration of Interesting Specimens
.....Dept. of Pathology
- 9:30 p.m.—Laboratory demonstrations.
Anatomy, Physiology, Pathology, Pharmacology.
Friday, February 6th.
- 8:30-10:45 a.m.—Operative Clinic.....
.....Dr. A. A. Law and Dr. H. P. Ritchie.
- 9:00-10:00—Ward Rounds, University Hospital
.....Surgical Staff
- 8:30-10:45—Rhinclogy, Operative Clinic...
.....Dr. H. S. Clarke
(small operating room, Univ. Hospital)
- 10:30-12:00—General Surgery, University Dispensary
.....Dr. E. C. Robitshek
- 10:45-12:30—Gynecological Clinic.....Dr. J. L. Rothrock
(large operating room, Univ. Hospital)
Obstetric demonstration....Dr. J. C. Litzenberg
(small operating room or ward, Univ. Hospital)
Luncheon, Minnesota Union.
- 1:00-2:30—Medical Dispensary.
General Medicine.....Dr. C. R. Drake
Gastro-intestinalDr. F. H. K. Schaaf
TuberculosisDr. F. W. Wittich
- 1:30-2:30—Skin Clinic, Dispensary.....
.....Dr. S. E. Sweltzer, Dr. J. Butler
- 1:00-2:30—Urology, cystoscopic demonstrations
.....Dr. G. J. Thomas
(University dispensary)
- 2:00-3:00—Medical Clinic, University Hospital.
Medicine, (Lecture room).....Dr. S. M. White
Nervous & Mental (Operating room)....
.....Dr. A. S. Hamilton
- 3:00-4:30—Ward Rounds, University Hospital
MedicineDr. C. E. Nixon,
.....Dr. E. T. F. Richards, Dr. A. H. Beard
PediatricDr. N. O. Pearce
- 4:30—Clinical Pathological Conference, Institute of
Anatomy
Clinicians ...Dr. H. E. Robertson, Dr. E. T. Bell

The University of Minnesota Medical School is anxious for the physicians of the state to realize that the faculty of the Medical School is desirous to serve the needs of the profession of the state as well as those of under-graduate students. These Physicians' Days are arranged in order to make it possible for the physicians of the state to keep in touch with the work of the University. All physicians will be made welcome.



CORRESPONDENCE

Minneapolis, Minn, January 12, 1920.

Minnesota Medicine:

All discharged soldiers, sailors and marines who received injuries or contracted illness or disease in line of duty, and who are now suffering the after effects, are entitled to free medical attention and hospital or sanatorium care from the Government.

The United States Public Health Service—Dr. H. M. Bracken in charge, 744 Lowry Building, St. Paul—is responsible for this care in Minnesota, North and South Dakota and Montana. Contracts have been made with suitable hospitals and sanatoria and a large staff of physicians and experts has been appointed.

We find that many discharged soldiers are suffering for medical care because of lack of funds, and others are paying for such care at serious personal inconvenience, and we are most anxious to have it generally understood that this is unnecessary, and that ample facilities are at their command free of charge.

While the Government is willing to provide for every discharged man in this way, it is not willing to be held liable for unauthorized treatment by private physicians or care in a private hospital.

It would be a great service to the discharged soldiers if every physician could understand this situation, in order that he might report any case of a discharged soldier, sailor, or marine that comes to his attention where there is the slightest chance that the disability is traceable to army service.

It is especially important, where hospital care is necessary, that the men should be officially examined and entered in hospitals authorized by the Government.

Red Cross Home Service Sections (401 LaSalle Building, Minneapolis—and Corner 4th and Market Streets, St. Paul) understand exactly what steps must be taken to facilitate the man's examination by the Public Health Service staff, and it will undoubtedly expedite matters if the discharged men will report themselves to Red Cross Home Service, or if interested physicians will refer all cases that come to their attention to the Home Service Sections.

In a locality where there is no Red Cross Home Service Section, a discharged man should write himself, or, better yet, ask a physician to write, to the Public Health Service, stating his case and asking for instructions.

Any effort you can make to secure publicity to these facts will be greatly appreciated.

Very sincerely yours,

Ralph A. Marsh,

Secretary,

Department of Discharged Men.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE DECEMBER MEETING, 1919

The regular monthly meeting was held on the 10th, Dr. Dennis, the vice president, taking the chair in the absence of Dr. Sweetser. The minutes of the previous meeting were read and approved. There being no special business to come before the society, the entire evening was devoted to hearing case reports and listening to the reading of papers. Dr. Leavitt reported a case of hydatidiform mole, and Dr. Burch a case of hypophyseal tumor. The two papers were presented by Drs. Hamilton and Corbett, one dealing with nerve injuries and the other with nerve surgery. Not often does the secretary permit himself to comment on what is offered before the Academy; but in this instance he is only repeating what many others were heard to say—that the subject was discussed in a masterly way.

Twenty-two members and two visitors were in attendance.

TUMOR OF THE HYPOPHYSIS CEREBRI

Dr. Burch reported a case of hypophyseal tumor in a woman twenty-five years of age. For thirteen years she had complained of poor vision, but otherwise her health was good. She never had had any serious illness. An occasional attack of vertigo was the only thing she spoke of as disturbing, except that she could not see well. She had never menstruated, but no illfeeling was charged to this.

At twelve years of age her eyes were so bad that she had to stop school, and it was only after prolonged treatment with glasses and a collyrium that she was able to resume her studies. An examination showed a concomitant divergent strabismus of the right eye. The external ocular structures and pupillary reaction were normal and the media clear. Both optic nerves showed advanced atrophy. No retinal disturbances. There was a bitemporal hemianopsia, the field defect being more typical in the left eye; the contraction, however, was more marked in the right. In view of the history, the impaired vision, the optic atrophy, and the hemianopsia, a tentative diagnosis of a tumor of the hypophysis was made. The X-ray showed the nasal sinuses present and clear, the sella turcica much enlarged, the floor thick and depressed.

Anterior lobe extract in three-grain doses t.i.d. was tried. At the end of a month the patient had gained a few pounds in weight, but otherwise showed no improvement.

On November 25, a right middle turbinectomy was performed, followed by sphenoidal puncture. The sinus proved to be of normal dimensions, except transversely; there was no fluid present, nor could

any tumor mass be palpated. A radiograph picture, taken with a probe in position, showed the end of the probe touching the thickened floor of the sella.

CASE OF HYDATIDIFORM MOLE

Dr. Leavitt reported a case of hydatidiform mole in a young woman pregnant for the first time. The patient was married in May. In June, July and August she menstruated naturally, but missed the September period. In October she had a flowing spell that was thought to be a return of the menses, and for a short time gave up the thought that she was pregnant. The flow continuing at irregular intervals thereafter for a number of weeks, her physician was consulted. In November, in addition to her gastric disturbances, which were unusually troublesome, she began to complain of pain in the uterus. Both complaints grew progressively worse as the days went by.

When seen by Dr. Leavitt for the first time, her physician, Dr. John Kelly, stated that her anemia, which was quite apparent, was of long standing. The uterus was as large as a six-months gestation, and very sensitive to touch. There was no bleeding at the time, but there had been considerable that day. No fetal movement had been felt at any time. On the day following, the pains continued with increasing vigor. A miscarriage seemed imminent. She was taken to the hospital. An attempt to dilate the cervix failed. The tissues were as unyielding as in the non-pregnant state. To add to our perplexity, a good-sized sound could be passed more than eight inches into the cavity of the uterus without meeting resistance or bringing away blood or water. During the few days that followed, the pulse ran as high as 128, the temperature occasionally rising two or three degrees. Opiates were required to relieve pain. Nausea and vomiting were almost constant. The anemia became rapidly worse. She could not sleep. Four days later several blood clots were passed, and in the night following she had what several physicians who saw her believed to have been an intraabdominal hemorrhage. The abdomen was opened the following morning, thinking to find a ruptured ectopic pregnancy. Instead, both tubes and both ovaries were normal. An incision was made in the uterus, through which poured cysts of various sizes, varying from that of a pinhead to a pea. How much in quantity came away or was removed from the cavity of the uterus could not be said exactly; it was estimated to be fully two double handfuls. The endometrium was carefully sponged and the surface inspected. The uterus was closed with both interrupted and continuous sutures. During and following operation various measures were employed to combat the anemia, and as far as the pulse was concerned, the patient left the operating room better than when she entered. However, she never rallied, and died four hours later. Specimen shown.

F. E. LEAVITT, Secretary.

OF GENERAL INTEREST

Dr. P. S. Epperson of Duluth has moved to Chicago.

Dr. E. S. O'Hara, recently of Milroy, has located at Grygla.

Dr. Henry W. Goehrs formerly of Melrose has located at St. Cloud.

Dr. Cora Allen of Heron Lake has accepted a hospital position in Iowa.

The new hospital at Milaca is now opened and ready to receive patients.

Dr. A. W. Swedenburg was appointed Government Examiner for Pennington County.

Dr. A. B. Kirk of Chisholm will move to California where he will make his future home.

Dr. Paul F. Brown, who served in France has returned to his practice in Minneapolis.

Dr. G. A. Larson has associated himself with Drs. F. M. and J. F. Smersh of Owatonna.

Dr. C. A. Fjeldstad, formerly of Red Wing has opened offices at 712 Pillsbury Bldg., Minneapolis.

Dr. H. W. Arndt of Paynesville has moved to Frazee, where he purchased the hospital building.

Dr. G. I. Badeux of Ironton has moved to Brainerd where he will enter partnership with Dr. Thabes.

Dr. L. M. Keene of Alexandria, was married in Minneapolis, December 12th to Mrs. M. M. Soper.

Dr. G. T. Nordin has returned from France and opened offices at 743 East Lake Street, Minneapolis.

Dr. J. M. Neal head intern at the City Hospital in Minneapolis was appointed temporary superintendent.

Drs. Olson and Derdiger, who have been practicing medicine in North Dakota have located at Battle Lake.

Dr. F. N. Bjerkén recently returned from overseas, has entered into partnership with Dr. P. Cremer of Hastings.

Dr. E. T. W. Boquist recently returned from overseas, has opened an office in the Martinsen block, Minneapolis.

Announcements have been sent out of the marriage of Dr. O. H. Warner of Canby to Miss Ursula Troendle of Mapleton.

Dr. S. D. Gausemel, who has been practicing at Kenyon has moved to Goodhue and formed a partnership with Dr. H. P. Sawyer.

Dr. I. J. Murphy has moved from the Donaldson Bldg., to the Pillsbury Bldg., Minneapolis, where he has opened a consultative laboratory.

Dr. G. A. Holm has returned from overseas and has located in Minneapolis. He was formerly in partnership with Dr. Tuohy of Duluth.

Dr. R. G. Spurbeck has returned to Cloquet after a five months absence. Dr. Spurbeck was taking a special course in eye, ear, nose and throat diseases.

Dr. John Perkins has moved from Redwood Falls to Sanborn, where he has taken over the practice of Dr. M. C. Piper. Dr. Piper has moved to Rochester.

Doctors of Bayfield, Iron and Ashland counties have elected the following officers: President, Dr. J. M. Dodd, Ashland; Vice-president, Dr. H. Hannum, Bayfield; Secretary-Treasurer, Dr. Bell, Andrus.

Dr. Henry A. Beaudoux announces that he has returned to civil practice and will open offices at 605 La Salle Bldg., Minneapolis. He will limit his practice to eye, ear, nose and throat work. Dr. Beaudoux formerly practiced in St. Paul.

The plan to close the hospital at Carlton known as the Red Cross Hospital and which was established by the Minnesota Forest Fires Relief commission, has been reconsidered and it will be continued in operation with Drs. Raiter and Stuart in charge.

This picture will be shown in regular theatres throughout the country, wherever it receives the local support of the authorities. It is considered the best propaganda film on public health subjects, ever made, and it should be shown in every municipality of the United States.

The Western Surgical Society met at Kansas City in December and elected the following officers: Dr. Arthur T. Mann of Minneapolis was elected President and Dr. Warren A. Dennis of St. Paul was elected Secretary. The 1920 meeting of the society will be held in Los Angeles.

A meeting of the staff of the Mayo Clinic was called December 31st in memory of the late Sir William Osler. Several physicians including Drs. W. J. and C. H. Mayo discussed phases of Dr. Osler's life and work and reviewed his remarkable influence on the development of modern medicine.

In line with the intensive warfare being carried on by the State Board of Health venereal clinics have been operating for some time, one for men at the University; one for men and women at the St. Paul Dispensary; one for women at the Minneapolis City Hospital and one for men and women at St. Mary's Hospital.

The last state legislature passed a bill providing for the establishment of classes for the conservation of vision by appropriating a sum of \$200 per annum for each child requiring the special benefit of such classes. Mr. Meyer of Ohio has been appointed supervisor of this department and Dr. Douglas F. Wood, Minneapolis has donated his services as ophthalmologist for examinations of candidates.

At the meeting of the Southern Minnesota Medical Association held in December at Mankato, the following officers were elected: President, Dr. H. Z. Griffin, Rochester; Vice-President, Dr. Archa Wilcox, Minneapolis; Second Vice-President, Dr. W. J. Richardson, Fairmont; Secretary, Dr. H. T. McGuigan and Treasurer, Dr. G. F. Merritt, St. Peter. Fairmont, Minnesota was selected as the next convention city.

The new motion picture, "SOME WILD OATS," on the venereal disease question, has been released. It was made under the auspices of the N. Y. C. Health Dept., and with the aid of the U. S. Navy, Recruiting Division. It is in seven reels, one of which contains propaganda, and the other six, a powerful love story, showing the ravages of the disease, how it is contracted, and the solution of stamping out same in any locality.

In one of the reels, Royal S. Copeland, Health Commissioner of New York City, is shown at work, and it also shows what his department is doing to eradicate this menace in New York City. All the authorities say that "SOME WILD OATS" is a clean production, as it is so constructed that it does not offend anyone, but teaches a remarkable lesson—without preaching. It is the most recent of V. D. Features produced, being made by the health officials who condemned, "FIT TO WIN," "THE END OF THE ROAD," and "OPEN YOUR EYES," which they considered immoral and prohibited their showing in the State of New York.

NEW AND NON-OFFICIAL REMEDIES.

During December the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

Calco Chemical Company:

Procaine-Calco.

Merck and Company:

Ichthylol-Merck.

E. R. Squibb and Sons:

Thyrcxin Squibb.

Typhoid Parathyphoid Bacterin (Special Bacterial Vaccine No. 13) Squibb.

Winthrop Chemical Company, Inc.:

Sajodin.

Hoyt's Gluten Special Flour.—A gluten flour containing protein, 80 per cent; fat, 1 per cent and starch, less than 10 per cent. This flour may be used when a diet relatively free from carbohydrates is desired, especially in diabetes. It does not make a satisfactory bread, but may be used to prepare muffins, flat cakes, or gruel. The Pure Gluten Food Co., Columbus, Ohio (Jour. A. M. A., Dec. 13, 1919, p. 1843).

Lactic Acid-Producing Organisms and Preparations.—Fermented milks have long been used because they were palatable to many or because of an opinion among the laity and among physicians that they were advantageous in certain disorders of the gastro-intestinal tract. A great stimulus to the employment of fermented milk was given by the theories of Metchnikoff regarding intestinal putrefaction, which are, however, entirely unsupported by scientific evidence. No one seriously subscribes to his opinions at the present time, but, on the other

hand, there is evidence that the administration of sour milk products is at times beneficial. In pediatrics, fermented milk has found a wide application. By the use of acid-producing bacteria, milks of suitable composition may readily be prepared. For this purpose, bacteria of the Bulgarian bacillus group, usually in association with *Streptococcus lacticus*, have been found particularly satisfactory. There is little evidence showing that organisms of the *Bulgaricus* group can be implanted in the intestinal tract. There is little evidence that liquid cultures of lactic acid organisms are of value as local application to mucous membranes or in arresting putrefaction or suppuration in wounds, abscesses or sinuses. Liquid cultures of lactic acid organisms, and still more the tablets, deteriorate with age. All such preparations must be stored in an ice chest and should be marked with an expiration date after which they are not to be used (Jour. A. M. A., Dec. 20, 1919, p. 1887).

Lactic Acid Ferments.—In preparing the 1920 edition of New and Nonofficial Remedies, it appeared desirable to the Council on Pharmacy and Chemistry that careful reconsideration should be made of the use in medicine of lactic acid bacteria—and products prepared by means of these bacteria—in relation to practical therapy. A special committee consisting of a physiologic chemist (Lafayette B. Mendel, chairman), a pediatrician (John Howland), an internist (W. P. Longscope), a rhinologist (H. I. Lilly), and a bacteriologist (L. F. Rettger) took up the problem. A circular letter was sent by the committee to a large number of well-known bacteriologists, clinicians and manufacturers who might be assumed to have experience or information bearing on the practical use of lactic acid bacilli. Based on the replies which were received, the committee has revised the discussion of "Lactic Acid-Producing Organisms and Preparations" which appears in New and Nonofficial Remedies. These replies showed that the bacteriologists and scientific laboratory workers show far less enthusiasm for the claims of lactic acid bacteria for a place in practical therapy than do the clinicians. It was the general opinion that the Bulgarian bacilli cannot be effectively implanted in the alimentary canal by feeding cultures thereof. The overwhelming preponderance was against the usefulness of cultures of the bacilli in infected sinuses, cavities, etc. The committee recommended that cultures of *Bacillus acidophilus* be not included in N. N. R. at present. The committee considers it important that the Council should continue its control of the viability and purity of cultures offered for sale (Jour. A. M. A., Dec. 20, 1919, p. 1895).

Benzyl Benzoate for Therapeutic Use.—Van Dyk and Co.—A brand of benzyl benzoate which complies with the N. N. R. standards. For a discussion of the actions, uses and dosage, see New and Nonofficial Remedies, 1919, p. 53. Van Dyk and Co., New York.

Luminal.—Phenobarbital—Phenyl-Ethyl-Barbituric

Acid—Phenyl-Ethyl, Malonyl-Urea. Phenobarbital (luminal) differs from barbital (veronal) in that one ethyl group has been replaced by one phenyl group. It is claimed that the introduction of the phenyl group increases the hypnotic power of luminal over that of barbital. Luminal is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system. Dose, from 0.2 to 0.3 gm., increased if necessary to 0.8 gm. Luminal is supplied in powder and as Luminal Tablets 1½ luminal. Winthrop Chemical Co., Inc., New York.

Luminal-Sodium.—Phenobarbital Sodium—Sodium Phenyl-Ethyl Barbiturate. The monosodium salt of phenyl-ethyl-barbituric acid. The actions and uses of luminal-sodium are the same as those of luminal. For hypodermic injection luminal-sodium is used in the form of a 20 per cent solution. The dose of luminal-sodium is 10 per cent greater than that of luminal. Winthrop Chemical Co., Inc., New York.

Sajodin.—Calcium monoiodobenzenate. The calcium salt of monoiodobenzoic acid. Sajodin is used as a substitute for iodides. The iodine of sajodin, being longer retained, is perhaps better utilized. It is also less liable to produce gastric disturbance than alkali iodides. Sajodin is also supplied as Sapodin Tablets 8 grains. Winthrop Chemical Co., Inc., New York (Jour. A. M. A., Dec. 27, 1919, p. 1939).

PROPAGANDA FOR REFORM

The New Bacchus.—No longer should artists—at least, American artists—represent Bacchus astride a wine barrel: the little god should be depicted astraddle a "patent medicine" bottle. As every physician and pharmacist knows, there are on the American market a number of widely advertised and extensively sold "patent medicines" whose most potent ingredient is alcohol. The problem of controlling these alcoholic "patent medicines" can be satisfactorily solved in only one way, and that way is to prohibit the use of alcohol in preparations of the "home remedy" type, that is, in those products which are sold indiscriminately to the public for the self-treatment of disease (Jour. A. M. A., Dec. 6, 1919, p. 1772).

Antimeristem-Schmidt.—A letter received by physicians from the "Bakteriologisch-Chemisches Laboratorium Wolfgang Schmidt" of Cologne, Germany, calls the attention of American physicians to Antimeristem-Schmidt. Antimeristem-Schmidt was rather widely exploited some six or seven years ago. It is a preparation claimed to be useful in the treatment of inoperable cancer and as a supplementary treatment after operation for cancer. The treatment has been found without effect and no license for the sale of Antimeristem-Schmidt has been granted by the U. S. Treasury Department and therefore its importation into this country is prohibited (Jour. A. M. A., Dec. 6, 1919, p. 1787).

Thialion.—This is an heirloom of the days when lithium salts were supposed to be nature's antidote for all kinds of ailments supposedly due to excess of

uric acid. The Council on Pharmacy and Chemistry reported in 1906 that it was not a definite chemical compound as suggested by the chemical formula published by the proprietor, the Vass Chemical Company, but a mixture consisting chiefly of sodium sulphate, sodium citrate and small amounts of lithia. In recent advertisements, Thialion is referred to as "A Non-Effervescing Lithiated Laxative Salt," "a non-hygroscopic, non-deliquescent, granular salt of lithia," etc., but the chemical formula does not appear, nor is any definite statement of composition furnished (Jour. A. M. A., Dec. 6, 1919, p. 1789).

Lubricating Jelly.—The subjoined formula for an inexpensive lubricating jelly has been used in the German Hospital (now the Lankenau Hospital), Philadelphia, for a number of years: Tragacanth, whole, 3 gm.; glycerin, 25 cc.; phenol, 1.5 gm.; distilled water to make 300 cc. The tragacanth is broken in small pieces and put into a wide-mouthed bottle; the other ingredients are added and the bottle is frequently shaken (Jour. A. M. A., Dec. 13, 1919, p. 1852).

The Prevention of Simple Goiter.—O. P. Kimball, J. M. Rogoff and D. Marine publish their third paper on the effect of sodium iodide in the prevention of goiter in school children. They conclude that simple goiter in man may be prevented and that the method may be carried out as a public health measure. Two gm. of sodium iodide given twice yearly seems adequate for the purpose (Jour. A. M. A., Dec. 20, 1910, p. 1873).

PROGRESS IN MEDICINE AND SURGERY

OPEN AMPUTATION THROUGH THE KNEE-JOINT: Morris K. Smith, M. D., of New York, (Annals of Surgery, Vol. LXX. No. 3, September, 1919) says, "Open amputation through the knee-joint for suppurative arthritis of the knee was first done at American Red Cross Military Hospital, No. 2, at the suggestion of Colonel Joseph A. Blake. The patient had a badly infected joint with extensive burrowing of pus up the thigh. It was Colonel Blake's idea to avoid opening bone and marrow cavity to the infection."

He states, "We have done this operation in six cases, of which three were for suppurative arthritis, and three for gangrene of the leg. Its advantages over open amputation through the lower end of the thigh fall under three heads: (1) less opportunity for bone and marrow cavity infection; (2) improvement in the ultimate stump; (3) lessened operative shock."

The writer feels this method is worth reporting as the recent war literature has given it but passing mention. Its prime worth would be where menial operative shock is necessary.

GEORGE EARL.

TRAFFIC IN NARCOTIC DRUGS. Report of Special Committee of Investigation Appointed March 25, 1918, by the Secretary of the Treasury. Published from the office of the Commissioner of Internal Revenue, June, 1919.

Statistics compiled by the Department of Commerce show that the quantities of narcotic drugs imported in this country have steadily increased from the date when the first entries were reported until our supplies were shut off as a result of the present war. In 1915 approximately 490,000 pounds of opium and more than 1,000,000 pounds of coca leaves were supplied to the public through a total of 233,491 individuals. The minimum value of these drugs computed on the basis of retail price of crude material would be something over \$20,000,000. Investigators believe that only from 10 per cent to 25 per cent of this quantity is actually needed to supply the demand for legitimate medical purposes.

The number of individuals addicted to the use of opium and its derivatives, coca leaves and their derivatives, in the United States varies in estimation from 200,000 to 4,000,000. There is a laxity of laws and regulations making it compulsory for the registration of addicts throughout the country and this results in impossibility to obtain accurately the number of addicts in the United States at the present time. It is believed from questionnaires that physicians of the country have 237,000 addicts under treatment at the present time. Addicts of the underworld are difficult to estimate. Accurate data was secured by the health officer of Jacksonville, Florida, to the effect that 1.31 per cent of the population of that place were addicts. On this basis there would be 1,388,600 addicts in the United States. The health officer of New York reports 103,000 addicts in that city alone which is equivalent to 1.8 per cent of the population. On this basis there would be 1,908,000 addicts in the United States. It is probable that the total number of addicts exceeds 1,000,000. Reports of decreases in the number of addicts are received from rural districts and smaller cities where little or no attention has been given this subject before. The consensus of opinion is that the number of addicts will increase as the prohibition laws are enforced.

Anyone repeatedly taking a narcotic drug over a period of thirty days is in great danger of becoming an addict. When addiction has been established it is impossible to discontinue the use of the drug without outside assistance. The habit of using opiates or cocaine is acquired through association with addicts, through the physician and through self-medication with these drugs in their original form or in patent or proprietary preparations containing the same.

The first two are of about equal importance, the last being less so.

There are two classes of addicts, those of the underworld and those of good standing. The first mentioned class acquires the habit through associa-

tion. The second usually through physicians, although some through self-medication.

Morphine, heroin, opium and cocaine are the drugs used by addicts in order of their frequency. The use of heroin is increasing, it can be taken easily, the habit is acquired by association in a large majority of cases. The drug is regarded the most dangerous from the standpoint of habit formation.

Statistics on ages and employment of addicts show that most heroin and cocaine addicts are young, usually under the age of twenty. A large proportion of the addicts are not engaged in occupations which call for hard labor. Many do not work at all. This is especially true of heroin habitues. Habit-forming drugs produce a marked physical and mental deterioration in individuals addicted to their use and such an addict seldom reaches old age, falling an easy prey to some other ailment.

As a usual thing an addict appears normal to the casual observer but is weak in character and will and lacking in moral sense. The drug habit has some bearing on the question of crime but it is not yet clear to what an extent. Where addicts have committed violent crimes it is reported that they were users of cocaine or heroin.

The economic loss to the country sustained through drug addictions may be gained from the cost of the drugs used by addicts and the loss through employment of those addicted. It is believed that satisfaction of addiction costs the addicts \$61,000,000 a year. On the basis of 250,000 unemployed addicts the conservative estimate of the loss in wages would be \$150,000,000. These figures do not include the cost of drug addiction to individual as a result of loss through theft and burglary nor the cost to the state and municipalities in the suppression and punishment of crime and the care and treatment of those who eventually become a charge on the community.

Conclusions

1. Records having a bearing on phases of drug addiction are meager, if kept at all. This is due principally to lack of knowledge of the seriousness of the situation. These conditions should be remedied.
2. No further National legislation is necessary on the subject at the present time.
3. The question of the responsibility for the care and treatment of addicts should be discussed and settled as soon as possible.
4. Educational campaigns should be instituted in all parts of the United States to inform the people and the medical profession of the seriousness of drug addiction and secure their aid and cooperation in its suppression.
5. The treatment of drug addiction should be thoroughly studied and standardized.
6. The medical need for heroin is negligible compared with the evil effects of its use. Manufacture, sale, distribution or administration of this drug should be prohibited by states and municipalities.

C. E. SMITH.

STUDIES IN PROTEIN INTOXICATION: T. Harris Boughton (*Jour. Immunology*, July, 1919,) reports on the histological findings in the organs of rabbits given repeated anaphylactic shocks by repeated injections of a foreign protein, i. e., egg white.

The animals had been previously sensitized by three doses of egg white—one subcutaneous, one intraperitoneal and one intravenous.

The toxic doses were given at varying intervals, the total time running from seven to thirteen months.

The animals dying in acute anaphylaxis were posted at once; the rest were killed with chloroform or ether and posted.

The most striking changes were found in the kidneys—the characteristic lesion being located in the epithelium of the convoluted tubule and in the ascending limb of Henle's loop. Apparently this lesion begins with edema of the epithelial cells followed by vacuolization. The vacuoles increase in size until the cells present the appearance of an irregular network and the free margin becomes frayed. Necrosis or regeneration follows.

This change is most marked in animals dying in acute naphylaxis. Out of 20 cases suitable for autopsy all but 2 showed this lesion.

In addition to these epithelial changes, fibrous infiltration was quite marked as well and while the areas were small and widely disseminated, they were numerous.

Less constant changes were dilatation of tubules, edema of the glomeruli with proliferation of the endothelium, and slight vascular changes, i. e., edema and thickening of the walls of the small arteries.

Connective tissue changes were seen in the heart and liver and vascular changes in the lungs and liver.

The interest of this article to the reviewer lies in the application of the theory of protein intoxication as an etiological factor in nephritis.

The microscopic findings in both nephritis and experimental chronic protein intoxication are very similar—namely, epithelial-vascular-interstitial.

While considerable experimental work on nephritis has been done with such chemical irritants as uranium nitrate, but little investigation has been carried out when foreign protein was the exciting cause.

Previous work with proteins has been done by the author and others on guinea pigs with findings similar to those reported in rabbits.

So it is not too great a stretch of the imagination to seek for etiology of Bright's disease along this line.

CHAS. N. HENSEL.

NEUROLOGICAL INDICATION FOR AND AGAINST OPERATION IN TRAUMATIC INJURIES AFFECTING THE CENTRAL NERVOUS SYSTEM.

John Jenks Thomas; *Boston Med. and Surg. Jour.*, Vol. 160 XVII, No. 15.

The author endeavors to give his conclusions after a study of a considerable number of cases of this character. He states spinal column injuries present fewer debatable points than injury to the brain. The cord is damaged when the trauma is applied to the column and in addition we may have injuries of the cauda or nerve roots.

Falls where force is applied to the axis of the column may produce compression fracture of the body of the vertebrae and frequently result in no paralysis from the injury of nerve structure at the point of fracture, but may cause injury of nerve roots as they pass through foramina. There may also result areas of hemorrhage and softening far removed from seat of fracture. The author believes cases of this nature and cases of dislocation and fracture without signs of injury to spinal cord require only fixation of the spine.

The cases of fracture dislocation of the spine with crushing of the cord and immediate loss of sensation in the joints, muscles and skin, loss of bladder control, absence of reflexes especially plantar indicates complete section of the cord and an operation is useless. It is his opinion that even in a partial injury of the cord laminectomy is of no advantage unless in both cases the fracture can not be held in position. Cases that have not been operated upon which improve and then retrogress should be studied with the radiograph to determine the possible compression of the spinal canal by callus.

Laminectomy should be performed when the vertebral arches have been driven down upon the cord relying upon the radiograph for diagnosis. He believes also that laminectomy should be performed in the first six hours where neurological examination shows a complete crushing of the cord in the cervical region. With laminectomy hemisection of the cord maybe tried in hopes of relieving the pressure upon the nerve structures by the release of the hemorrhage in the substance of the cord. He agrees with the witty writer who stated that surgeons no longer operate for fractures of the spine only some Americans do it.

Depressed fractures of the skull require an operation as shown by X-rays and by local symptoms.

Bursting fractures of the skull often require only the control of hemorrhage either arterial or venous.

Fissure of the skull may result in damage either by hemorrhage or edema. Hemorrhage requires control by operation but edema can often be relieved by frequent spinal puncture. Great destruction of the brain substance is indicated by fixed dilated pupils, steadily rising temperature in absence of infection or in profound shock. Operation is contra-indicated.

An operation is of value in fractures of the skull where no evidence of paralysis, no definite reason

for operation but the patient remains mentally slow. On opening the skull the author states that often a blood clot is found adherent to the dura.

The author states that deciding in favor of operation, the object aimed at is the relief of cranial pressure, whether due to hemorrhage or cerebral edema; and if relief of this will compensate for added risks of cranial operation it should be advised.

C. C. CHATTERTON.

THE DIFFERENTIATION OF EARLY TUBERCULOSIS AND HYPERTHYROIDISM BY MEANS OF THE ADRENALIN TEST: N. C. Nicholson and E. Goetsch (Am. Rev. of Tub. Vol. 13 No 2) describe the difficulty oft times in differentiating tuberculosis, hyperthyroidism and their combination from symptoms alone. The clinical syndrome of symptoms consisting of fatigue, asthenia, loss of weight, nervousness, tachycardia, and sometimes slight temperature may be common to both diseases.

There exists a class of patients with the above symptoms which cannot be proven tuberculous by laboratory or X-ray and which do not improve with tuberculous treatment. Another class known to be tuberculous may or may not improve with tuberculous treatment and the question may arise whether the symptoms are due to tuberculosis active or inactive or to some other condition.

The authors believe from the work done over a period of three years by one of them that those suffering from hyperthyroidism are particularly susceptible to the administration of adrenalin thru its action on the sympathetic nervous system. These individuals react differently from tuberculous individuals in that they have an aggravation of the symptoms so often manifested in both conditions.

On this assumption a series of forty patients, 18 with a diagnosis of quiescent T. B., 16 inactive T. B., and 6 active T. B. were given a hypodermic of 0.5 adrenalin (1—1,000) and blood pressure, pulse, respiration and symptoms, objective and subjective, were carefully observed and recorded. Those cases showing an increase of ten or more points in B. P. and pulse in the first few minutes or an increase in the subjective or objective symptoms of weakness, nervousness, etc., were declared to be suffering from a more or less severe degree of hyperthyroidism. Of the 18 questionable cases 10 were thus definitely proven tuberculous, of the 16 inactive T. B., 9 were definitely proven tuberculous and of the 6 active T. B. cases all were negative. These last six reacted negatively except for a slight atypical rise in B. P. and pulse after an hour.

The authors insist that a constitutional hypersensitiveness to adrenalin indicates excessive thyroid function and maintain that "Our point is this: that it is just as wrong to say that a patient with a mild adrenalin hypersensitiveness has not a mild hyperthyroidism which may not require treatment at the time, as it would be to say that a patient had

had his tuberculosis only during the time that it was clearly active."

C. B. DRAKE.

TRANSITIONAL LEUKOCYTOSIS AND ITS DIAGNOSTIC VALUE IN CHRONIC APPENDICITIS:

G. A. Friedman (Am. Jour. Med. Sc. Oct. 1919) offers as a diagnostic aid in chronic appendicitis a differential count laying special stress on a relative and actual increase of large mononuclears and transitional leukocytes. There is apparently a difference of opinion as to whether the transitional is an early type of neutrophilia, or develops from the large mononuclear. The best evidence is in favor of the large mononuclear being a distinct type and not an early type of neutrophil and that the transitional cell which is a mononuclear neutrophil beginning nuclear indications suggesting an ultimate metamorphosis in the more constricted type classified as polymorphonuclear neutrophil.

The author takes as an increase in large mononuclears anything over 2 and in the case of transitionals anything over 4.

Basing his conclusions on an observation of 65 cases, he is of the opinion that an increased leukocytosis is a distinct diagnostic aid in cases of chronic appendicitis. I quote summary:

"1. Transitional leukocytosis or an increase in large mononuclears and in transitional leukocytes, or an increase in either of them, was found in the blood of 87% of patients in whom evidence of chronic appendicitis was obtained.

2. There was no transitional leukocytosis in the blood of patients in whom evidence of chronic peptic ulcer was obtained or in the blood of those in whom cholecystitis, renal stones or other organic abdominal conditions were found at operation.

3. A transitional leukocytosis was found in patients in whom appendicitis was present, with other organic abdominal conditions.

4. A hyperleukocytosis and polynuclear leukocytosis are not as frequently found in chronic appendicitis as a transitional leukocytosis.

5. A transitional leukocytosis as a diagnostic aid is superior to such roentgen signs which are supposed directly or indirectly to point to a diseased appendix.

6. Transitional leukocytosis often persists in the blood after an appendectomy has been performed."

In the body of the article, the author states that usually transitional leukocytosis disappears upon removal of the appendix.

H. B. ZIMMERMANN.

PNEUMONIAS FOLLOWING INJECTIONS OF ARSENOBENZOL: Schwerdtfeger and Tinker (Am. Jour. Syphilis; Vol. 3 No. 2) state that nine syphilitics were injected intravenously with Arsenobenzol and immediately following the injection or within a few minutes developed symptoms of irritation to respiratory organs and within a few days bron-

chopneumonia. They were all critically ill, but made complete recoveries.

The symptoms were pain in chest, cough, prostration and dyspnoea. The last symptom was extreme, the patients having to assume the sitting posture. Physical signs of bronchopneumonia developed in from one to three days in 8 out of 9 cases. In one case no abnormal signs were found but the clinical course in this case was the same as the rest. Febrile reactions were mild. The cough was short and distressing. Expectoration was bloody in four cases. The pulse ranged from 88 to 116. The highest temperature was 103.4. Cyanosis was slight in 3 cases and absent in the others. None had haemoptysis.

The physical signs were the same as in bronchopneumonia from other causes. One case showed a mild optic neuritis. The general course of the pneumonias was that of a moderately severe type. Albumin was present in 7 cases, granular casts in 2 cases, but these findings all cleared up. No haematuria or uremic symptoms were present.

The highest leucocyte count was 30,800; the lowest 8,400.

Blood cultures showed streptococcus hemolyticus in 3 cases; an unidentified diplococcus in 2 cases and were sterile in 4 cases.

The sputum contained staphylococcus in 6 cases; streptococcus hemolyticus in 2 cases, and an unidentified diplococcus in 1 case.

The water used for injection was 5 to 7 days old and contained a few Gram positive diplococci. Each patient received 0.467 Gm. on the average of the drug, dissolved in about 20 c. c. of water. All technic regular except the amount of solution given at each injection.

In conclusion the authors state the following:

1. The reactions could not have been caused by undissolved particles, as this would not have happened in all cases.
2. They could not have been caused by bacteria, as the reactions were immediate.
3. Water was not responsible as the same water had been used before.
4. The alkali was sterile.
5. All the patients had been previously treated with some preparation of Arsphenamine.
6. The technic was not at fault as the same methods had been used in 200 other cases with no ill effects.
7. The reactions were immediate and were caused by chemical irritation. The authors thought the drug was responsible.

The Surg. General's Office commented as follows: "The only explanation other than the one given which occurs to me, is that the method of giving a concentrated solution may have something to do with results. The fact that the same technic was used in 200 other cases must be considered.

From our experience it is very possible that Salvarsan will pass all required tests and still be able

to produce toxic effects especially in concentrated solutions."

This arsenobenzol lot No. 907 was tested one year ago and passed a 90 mg per kilo test. This week (Jan. 25, 1919) it was tested again and passed at 100 mg per kilo. Apparently some other factor than the essential toxicity of the preparation must have caused these bad results, according to the Director of the Public Health Service.

Col. F. F. Russell calls attention to page 30 Man. of Treat. of the Venereal Diseases. 2nd edition, in which directions are given about the water to be used and also in regard to dilution. It reads as follows: "It is important that freshly distilled water be used for Arsphenamine solution. 30 c. c. of water per decigram of Arsphenamine is a safe dilution.

C. D. FREEMAN.

A LONG DURATION OF REMISSION IN PERNICIOUS ANEMIA: C. G. Stockton (Amer. Jour. Med. Sci. Vol. CLVIII No. 4, Oct. 1919) reports a case of pernicious anemia with a remarkable remission of twelve years, during which there was to all appearances good health. A further remarkable feature was the fact that the patient lived nearly twenty years from the time of onset of the pernicious anemia. Three years is a long time for the average case of pernicious anemia to live. Cabot has reported one remission lasting four years and a doubtful instance of six years. Cabot also has records of 37 long cases, that is, continuing more than four years; three of these lived fourteen years.

The first blood examination in Stockton's case is reported under the date of October, 1900. The red blood cell count at that time was 1,021,300, the hemoglobin 26% color index 1.3. Megaloblasts were present and there was well marked poikilocytosis. There was an irregular improvement following this for six years, at which time, although there was a moderate anemia, the blood lost all characteristics of the pernicious type. From 1907 to the beginning of 1918 the patient was considered to be well. There was then a sharp recurrence, the red cells dropping to 1,656,000, hemoglobin 28%. Normoblasts appeared. There was marked poikilocytosis and anisocytosis. Polychromatophilia was present. The case failed to respond to atoxyl and sodium cacodylate, which drugs had formerly appeared to be of benefit. Transfusion with 900 c.c. of blood led to a temporary improvement lasting only two weeks. The patient then developed lobar pneumonia and died, nearly twenty years from the recognition of the beginning of her pernicious anemia.

The writer points out, therefore, that although a patient may escape all signs of the disease (save one) for a period of ten to twelve years, yet the disease may recur.

He emphasizes that there was the disappearance of all evidence of the disease save one. That one was the continuance of achylia gastrica. In a long

series of cases he has not found an exception to the rule of the presence, sooner or later, of achylia gastrica. He believes that the persistence of this points to a close pathological relation between the stomach and the anemia. Attention, in this connection, is drawn to the observations of Seyderhelm working with larvae of the fly *Estrus equi*, occurring in the gastric mucosa of horses suffering from a severe anemia, in its characteristics said to be suggestive of pernicious anemia in man.

E. T. F. RICHARDS.

THE ETIOLOGY AND TREATMENT OF KERATOMALACIA: Ronne (Klin. Monatsbl. f. Augenheilk, Vol. LVII, September-October, 1916,) believes that the pessimistic attitude displayed by most authors in the prognosis of keratomalacia is unwarranted if a timely diagnosis and appropriate treatment be established. In Denmark this malady as a rule does not arise from a grave general disease but rather assumes the form of a xerosis on a purely nutritional basis.

The cause of the condition is almost universally the same. Owing to some disorder of the bowels it is thought necessary to change the diet from milk to carbohydrates or buttermilk. The child appears to thrive on the new regime, grows fat and apparently robust. As the dietary routine is prolonged the parents observe that the patient although fat, is pale, flabby and apathetic. In the course of a few months a conjunctivitis arises so slight at first that it is given little attention. From eight to fourteen days after this there suddenly appears necrosis of the cornea and the victim lapses into a condition of moribundity from pneumonia.

Ronne has observed that milk-fed children are practically immune from this disease due, he believes, to their manner of feeding. This fact is substantiated by the fact that if during the course of keratomalacia milk in sufficient quantities be given, an almost miraculous improvement follows not only for the eye but also the general health.

Despite the statement of the parents that the child will not tolerate milk it should be given as freely as the patient can take it without regard to bowel symptoms that may arise. At first there will result a decrease in weight in the carbohydrate-fed patient owing to the loss of excessive tissue fluids by diuresis which needs cause no alarm. Unadulterated raw-milk should be used and only in the benign cases should one venture to employ it cooked.

PAUL D. BERRISFORD.

IVORY EXOSTOSIS, GROWING FROM THE ROOF OF THE FRONTAL SINUS INTO THE ORBITAL AND CRANIAL CAVITIES, REMOVED THROUGH AN OSTEOPLASTIC OPENING IN THE CRANIUM William Lang and Donald Armour (Proceedings of The Royal Society of Medicine Vol. XII, No. 7.) report a case, age 19, first seen February 19th, '18. There was a displacement of the

left globe forwards, downwards and outwards which had been observed for the past six months. The vision was with correction normal, pupils equal, regular and reacted normally to both light and accommodation; there was no limitation in the mobility of the eye-ball. The roof of the orbit was depressed and felt hard. There were no subjective symptoms other than a diplopia that had existed for three months.

Examination of the nose and the nasal sinuses proved negative; an X-ray picture revealed a solid mass in the orbit. Mr. Treacher Collins recommended that the growth be removed by a surgeon skilled in cranial surgery. The operation performed by Donald Armour was most successful in every respect. The globe regained its former position and diplopia disappeared.

Description of the Operation.

The surgical problem that presented itself was the most desirable method of approach to the tumor with the least possible damage to the cranial and orbital contents. After viewing the X-ray plate the surgeon determined that the same method should be employed as in the removal of frontal tumors.

He made an osteoplastic flap with its base at the supra-orbital margin, turning down the scalp and the bone together. The cranial portion of the tumor which pushed up the under surface of the frontal lobe then came into view. By displacing the dura and the brain gently backwards, the whole extent of the tumor's cranial portion could be seen. The surgeon determined that the tumor was fixed to the supra-orbital margin but later discovered his mistake on attempting its removal. He sawed the supra-orbital margin in both sides of the growth but upon removing this wedge of bone it separated cleanly from the tumor and adhered to the periosteum. The neoplasm was then removed by means of a chisel, and hammer, and a cutting forceps. The operation was completed by replacing that portion of the supra-orbital margin removed during the operative procedure and suturing the displaced bone flap and scalp into position.

The intracranial portion of the tumor was smooth, white and ivory-like while the intraorbital part was covered with mucus membrane. The tumor had evidently arisen from the frontal sinus.

PAUL D. BERRISFORD.

TRANSFUSION OF BLOOD IN PERNICIOUS ANEMIA: J. M. Anders (The American Journal of the Medical Sciences, Vol. CLVII, No. 5) believes from his own experiences and from a study of the literature that transfusion offers more for pernicious anemia than any other form of treatment. It is highly probable, he believes, that transfusion of blood in this disease owes its beneficial effects principally to stimulation of the anti-hemolytic properties of whole blood, although possibly also to some extent to its power to increase the activity of the bone marrow.

The 450 cases reported in the literature in which

1,048 transfusions were performed, is a large enough number to base on which a fairly accurate estimate of the value of transfusion as a remedial measure. Considerable light has been thrown upon the question of the duration of remissions by transfusions by these observations, although the reports are too often silent on this phase of the effects of the procedure. Of 362 cases in which the result was given, 204, or 56.3 per cent., showed an initiation of remissions. Cases in which the improvement was brief and might have been ascribable to the mechanical effects of the transfusion were not included in the figures representing remissions. It is worthy of note that the average number of transfusions per patient was 2.4, while the extremes ranged from 1 to 20 transfusions.

Weber, Hurter, and others have, as a result of personal observation, reached the conclusion that repeated smaller transfusions, e. g., "200 to 500 c. c.," which are free from dangerous reactions, give more satisfactory results than single, massive ones. The series of cases which make up the table accompanying the writer's article confirm this view. Single transfusions, however, prove sufficient in a certain percentage of cases (11 out of 26, Archibald). The determination of the precise amount of blood to be transferred is a question requiring further study and investigation. Of 185 cases in which the method was mentioned, 172 were transfused with citrated blood.

In this connection Vogel and McCurdy conclude, as the result of their studies that "The enumeration of the reticulated cells by means of the method of vital staining affords a useful means of gauging the hemopoietic activity of the bone-marrow, and by watching the patient's progress in this way the indications for and effects of various therapeutic measures can be well determined and supervised." The intervals in the case of multiple transfusions, must be determined by repeated examinations of the patient's blood, preferably by the method of Vogel and McCurdy, since this is the only trustworthy method of estimating their effect. Obviously, the patient's general condition and subjective sensations must likewise be taken into account.

In the case reported by the writer, which had reached an advanced stage before the procedure was resorted to, the effects of the first transfusion were decided and lasted about eight months, and a second transfusion gives promise of an equally favorable result. As a means of establishing a reputation for the procedure, however, the limitation of its use to well-nigh hopeless cases is not promising. The present researches indicate clearly that earlier transfusions in cases showing no tendency to spontaneous remission or as the result of the more usual methods of treatment would yield the best results. Again, remissions are more easily induced in the earlier than the later stages of the disease.

Transfusion does not prolong the period of re-

mission. Cabot's figures show the quiescent period to be over 6 months in 165 out of 329 cases, whereas in the writer's series, and so far as could be ascertained from the literature, it was somewhat shorter. On the other hand, this measure easily brings about an increased number of remissions, hence it is not unreasonable to suppose that the total duration of life may be thereby prolonged. Evidence exists to show that those cases of the disease which have shown most improvement after transfusion had run a prolonged course as a rule, while the more rapidly progressive cases manifested a feeble remission.

The writer concurs in the opinion expressed by Kimpton that the results of splenectomy do not warrant the operation. This view is based on the assumed facts that transfusion offers quite as much as splenectomy, "with or without transfusion" (Kimpton), and that it obviates immediate deaths. The belief among certain observers that transfusion following splenectomy brings a more steady response than without splenectomy is not borne out by experience.

Krumbhaar, in a series of the late results of splenectomy in 153 cases, noted a mortality rate of about 20 per cent., and also that, as a rule, the improvement was transient. Moffitt, in an earlier article, states that of 33 cases of splenectomy for pernicious anemia gleaned from the literature, including one under his own observation, "eight died immediately or not long after the operation."

E. T. F. RICHARDS.

THE PERMANENT CURE OF INGUINAL AND FEMORAL HERNIA: A modification of the Standard Operative Procedures. By G. Paul LaRoque, M. D., F. A. C. S., Richmond, Virginia. Surgery, Gynecology and Obstetrics. Volume XXIX. No. 5, November, 1919.

The author describes the following technique; "the usual incision through skin, superficial fascia and aponeurosis exposes the inguinal canal containing the hernial sac and cord. With blunt forceps or scissors inserted between the muscle bundles of the internal oblique and of the transversalis and its fascia about an inch above their lower margin, the bundles are separated in the usual muscle-splitting fashion making a good exposure of the peritoneum well above the neck of the sac. In cases where the muscles are attenuated the arching portion of the internal oblique and transversalis may be retracted to a suitable position well above the neck of the sac. The peritoneum is then picked up and opened in the usual way. The neck of the hernia is adequately exposed from within the general peritoneal cavity. Adherent bowel and omentum are completely and easily removed and careful exploration of this region of the abdomen is made. In certain cases of small size narrow hernia and especially when the repair of the hernia is apart of some

operation upon pelvic organs performed through a median incision, the neck of the sac may be tightly sutured, the redundant peritoneum in the region taken up and tightened by two or three rows of sutures and the small narrow hernial sac safely left in situ. The finger inserted from above through the incision in the peritoneal cavity into the sac, permits easy and complete enucleation of the sac from the spermatic cord, bladder and large blood-vessels for a much higher distance than is ordinarily accomplished by enucleation of an empty sac from below. The bladder, vas deferens, and other structures are constantly in plain view and thus adequately protected against injury. With forceps introduced from the outside, against the finger within at the lowest portion of the sac, the sac is pushed upward and turned inside out into the peritoneal cavity and through the primary incision well above the neck. With the sac and redundant peritoneum in the region pulled well upward, the bladder and vas in full view, sutures are placed in the peritoneum well above the neck of the sac and to the upper edge of the original incision in the peritoneal cavity. By thus placing the sutures an inch or so above the neck of the sac a high ligation of the sac and redundant peritoneum in the region is insured. This suturing completely obliterates the internal ring and lifts the proximal portions of the spermatic cord well above and external to its original location, transplanting it from within. The sutures should also include a small portion of the transversalis fascia which has been inverted with the sac. In hernia of small size in which the amount of tissue is not excessive the sac may be allowed to remain after ligation and the split muscle sutured over them."

He has been employing the procedure with progressive satisfaction for some seven years, at first in cases of strangulated and complicated hernia, then in dealing with hernia in women while operating primarily for pelvic disease, and finally as a routine procedure in all cases of inguinal and femoral hernia.

GEORGE EARL.

ANGIONEUROTIC EDEMA: A preliminary report, Chas. R. Austrian. (South Med. Jour., July, 1919.) Starting with the dictum that angioneurotic edema is not a disease but merely the symptom of (1) allergy or anaphylaxis, or (2) infection, or (3) endocrine disturbance, or (4) thermic influences, or (5) metabolic changes, or (6) idio-pathis origin, the author cites two cases of his own and quotes from some of the literature.

Case I is of the anaphylactoid type and is worth quoting in brief: "The patient, a young man of 22 years, presented with a very marked itching and pale swelling of the scrotum of a few hours' duration. He reports various evanescent swellings of the forearms during the past several days and this morning there was a white painless swelling of the upper lip. A very thorough physical examination is

negative except for this swelling of the scrotum and dermatographia. The swelling of scrotum was relieved by Tinct. Bell. M V t. i. d. but recurred the following day. Five days later on awaking patient's tongue so swollen that speech was impossible. Patient attributed the symptom to eating lobster salad before retiring. Condition greatly relieved by hypo. of adrenalin.

Intradermic tests with extracts of milk, egg white, chicken, beef, negative, while extracts of oyster, lobster and fish caused slightly greater reactions than the controls.

Patient not seen for 8 months during which time he continued to have numerous swellings of hands, feet, lips and eyelids, occurring at intervals of from 1 to 2 days and relieved by adrenalin hypodermically. An intradermic injection of extract of fresh unsalted ham gave rise to a very marked local reaction with an indurated wheal 6 times the size of the control and a blotchy erythema that spread almost to the shoulder. The reaction reached its height in 45 minutes and lasted for 36 hours at site of the injection. Following this reaction all foods derived from the pig were withheld from the patient's diet, no other change being made and no medicine given. Patient was free from symptoms for next 4 months. After eating a ham omelette he got another attack, the first in 4 months. He likewise states that when he eats food fried in lard he develops small swellings on the hands and feet.

Seven months later, before joining Marine Corps, patient tested himself out by eating several slices of ham. Within a few hours he had an edema of the entire face. When heard from 9 months later patient had had no major attacks and only twice had small swellings appeared on dorsum of hands and these followed the ingestion of food cooked with ham fat."

The author mentions 4 similar cases, one of which reacts to an extract of white beans, another to fish, the third to veal, and the fourth to strawberries.

The author reports in detail another case of daily attacks of urticaria sensitive to rye, wheat, egg, milk, timothy, orchard grass, poplar, beef and salt solution 0.9 per cent. 4 abscessed teeth, as shown by X-ray, were pulled and within a few days all urticaria subsided to return no more.

He further quotes the work of Miller & Pepper on a patient with an obscure type of angioneurotic edema who showed a nitrogen retention and reduced sodium chloride elimination preceding the attacks, which is not true in the intervening periods. The patient was benefited by a low chloride intake.

CHAS. N. HENSEL.

LOCAL ANAESTHESIA AND THE MASTOID OPERATION: M. A. Goldstein, M. D. (The Laryngoscope, October, 1919, Vol. XXIX No. 10.) reports results in 20 cases of acute mastoiditis operated upon under local anaesthesia at Camp Dodge Base Hospital. The principal upon which local anaesthe-

sia is based depends on the diffuse and constant pressure on the nerve distribution in the skin and secular tissues as developed by Schleich and since anaesthesia depends entirely upon diffuse pressure on the nerve end organs and not on the character or strength of anaesthetic used distilled water or any weak local anaesthetic may be available. With regards to technic for injection in these cases a 10 Cc. all metal syring with metal plunger and needle $2\frac{1}{2}$ inches long was used, the anaesthetizing solution being one-half of one per cent novocaine in distilled water to which is added 1-10000 solution of adrenalin in equal parts, the solution is rendered sterile by boiling in an Erlenmeyer flask.

With a standard hypodermic syringe and needle a subcutaneous injection beginning with mastoid area in zygomatic line is worked toward the mastoid tip. The infiltration includes a belt of one inch in width extending from the insertion line of auricle backwards and parallel to it. The deep injections are then made with the heavier syringe beginning at same point covering the mastoid tip at four points. The needle is plunged in a slanting direction downwards until the point engages the mastoid bone and the needle is worked between the periosteum and bone, 5 or 6 Cc. of fluid being injected into the area, the other three points from the zygomatic line are injected in the same manner. A complete anaesthesia is thus effected throughout the field of operation.

With one sweep the classical incision is made down to the bone, before elevating the periosteum forwards and backwards a pledget of cotton saturated in 10 per cent cocaine is allowed to remain in site for five minutes.

As the posterior wall of the auditory canal and middle ear cavity are still sensitive and injection needle is passed to the depth of the mastoid incision between the periosteum and bone and carried to the fundus of the canal as far as possible, 3 Cc. of novocaine solution are injected at this point.

This suffices for simple mastoid cell exenteration and drainage of the antrum, for the radical operation further injections are necessary to insure anaesthesia of the tympanic membrane and tympanic cavity, after infiltration the technique is no different than that employed under general anaesthesia.

It is interesting to note that in this series of twenty cases 60 per cent were secondary to the Flu; 20 per cent secondary to measles; 20 per cent secondary to throat infections of no specific cause. Laboratory diagnosis of pus removed from the mastoid proved all infectious to be *Streptococcus Hemolyticus*. Fifty Cc. was the average amount of novocaine solution used and while the intensity of the infection varied all of the cases made complete and uneventful recovery. GEORGE C. DITTMAN.

CYTOLOGICAL STUDIES OF PLEURAL EXUDATES COMPLICATING INFLUENZA: Luke and Barker (*Am. Jour. Med. Sc.* Vol. 158, No. 4.) report their findings in the study of 17 cases where the fluid

was obtained at autopsy. The amount obtained varied from 50 to 3,000 c.c. and in the cases of shorter duration was thin, serosanguinous or seropurulent and in the cases of longer duration was more often purulent and thick.

In ten of the seventeen cases over forty per cent of the cells were of the endothelial type as described by Mallory, being 10 to 20 microns in diameter and possessing a large pale staining nucleus which in turn contained one or more nucleolus staining darkly. In 5 per cent of cases this endothelial cell constituted over 70 per cent of the cells, while the large and small lymphocytes generally constituted less than 10 percent of the cells. As a rule the polymorphonuclear cells constituted the bulk of the cells not mononuclear. In cases of shorter duration the mononuclear cells predominated while in those of longer duration and particularly where frank pus existed the P. M. N. cells formed a larger proportion.

The bacteriological findings were uncertain, were not related in any way to the sell findings and consisted of hemolytic and non-hemolytic streptococci, pneumococci and the *Bacillus influenzae*. This leads the authors to conclude that the character of the fluid is primarily produced by the soluble virus of the influenza bacillus. Phagocytosis was found in 9 cases and mostly occurred in P. M. N. cells.

Mallory has called attention to the fact that endothelial cells are called forth by mildly injurious agents such as the lepra, typhoid and tubercle bacilli. The authors call attention to the similar characteristics of typhoid and influenza. In each there is a leucopenia and a proliferation of the lymphoid tissues. In typhoid the intestinal and mesenteric lymphoid structures are markedly enlarged. In influenza the peribronchial and peritracheal nodes are highly swollen and packed with endothelial cells. In both there is an enlargement of the liver and spleen with toxic changes in both organs. In 126 influenza livers the authors found focal necrosis in 50 per cent. C. B. DRAKE.

SURGICAL TREATMENT OF CANCER OF THE TONSIL WITH REPORT OF CASES—John McCoy, (*The Laryngoscope* July, 1919, Vol. XXIX No. 7) describes a method for removal of the carcinomatous area. An incision about 2.5 to 3 inches long is made at the anterior border of the sterno-mastoid muscle. The glands about the jugular are dissected out, the facial vein is ligated in two places and cut. The external carotid artery is ligated. Dissection is carried up to the digastric muscle, this with the stylohyoid and styloglossus are pushed aside. Through the mouth the tonsil and infiltrated areas are dissected out, infiltrated tissue is especially looked for at the base of the tonsil where it connects with the tongue. The wound is partly closed, packed with gauze and allowed to heal by granulation. Radium is applied as an after treatment. In four cases operated upon in this manner the results are very favorable after one and two years duration.

GEORGE C. DITTMAN.

BOOK REVIEWS

THE OPERATIVE TREATMENT OF CHRONIC INTESTINAL STASIS. By Sir W. A. Lane, Bart, C. B. Henry Frowde, Hodder & Stoughton, London. 1918. \$7.00.

In the preface to the fourth edition of this book Mr. Lane states that "of all physical conditions arising out of the evolution of the human race, none is so fundamentally important to the organism as chronic intestinal stasis."

He gives a very elaborate and detailed account of the mechanism of intestinal stasis. He believes that every change in the anatomy of an individual to enable him to accommodate himself more efficiently to his surroundings also tends to shorten his life. The various bands which develop within the abdomen he regards as a "crystallization of the lines of force, 'Jackson's Membrane' is an example of the formation of these bands."

As a consequence of the infection of one's food supply, changes take place in the contaminated contents of the small intestine, resulting in flooding the circulation with toxins or organisms in excess of what can be dealt with by the liver, skin and kidneys. These toxins are what produce the degenerative changes in all textures of the body and tend to shorten the life of the individual. One can not estimate the amount of damage that these poisons are capable of inflicting—but it can be demonstrated how wonderful a change takes place upon proper operative procedures. He uses as examples the effects of colectomy in Still's Disease, Rheumatoid, Arthritis and Raynaud's Disease.

The book contains chapters by Nathan A. Neutche, M. D., on the Bacterio-Chemistry of the small intestine,—another by Sir James MacKenzie on Diseases of the Heart,—another on the "The Great Bowel from an anatomist's view point by Arthur Keith. Dr. Adams also contributes a chapter.

W. C. CARROLL.

TRENCH FEVER. By W. Byam, Major, R. A. M. C. Henry Frowde, Hodder & Stoughton. London. 1919. \$4.25.

A compendium on trench fever with numerous experiments confirming the convictions and conclusions of the authors.

In brief, experimentation and observation has shown that the louse, at least partially, is guilty in the production and transmission of trench fever. The virus remains in the peripheral blood of a patient at least 300 days after infection. It is, however, destroyed by the addition of large amounts of distilled water to the circulating blood. Only lice fed on trench fever patients are capable of producing the disease. It may be added that the excreta of infected lice when applied to an abraded skin or conjunctiva, will produce the malady without the presence of lice. The lice do not transmit the dis-

ease to their offspring and are not infectious for at least 5 days after the first feeding on a trench fever patient. One louse is sufficient to initiate the disease, and at present, it is unknown what percentage of lice do get actually infected. The excreta of infected lice are infective at least 120 days. Individual peculiarities, virulence, size of dose, may explain variations in trench fever and its incubation period which may be anywhere from 5 to 30 days, usually 8 days. In the opinion of the authors, the bites of lice serve as lesions through which the excreta enter and cause the disease. Both the head louse and the body louse equally well convey trench fever.

Natural immunity is questionable, and an attack of trench fever may confer it for 6 months, or possibly longer. Richettsia Bodies appear constantly after a suitable lapse of time in lice fed on trench fever patients, and their absence in lice fed on healthy individuals is noteworthy, but their significance is unknown. To the well known louse diseases; namely typhus and relapsing fever, now belongs also trench fever to which has been attributed the D. A. H. (disordered action of the heart), of which the most common symptoms are; exhaustion, giddiness, fainting, headache, breathlessness, pain, irritability lassitude, sweating coldness of extremities palpitation, cardiac irregularity, and fever. The prognosis depends on the past medical history, number of attacks, early rest after onset, and individual recuperative capacity. No specific treatment is known, hence prophylaxis is all important and consists essentially in exterminating the lice and proper destruction or disinfection of their excreta. Numerous methods and their effectiveness and practicability have been proposed for this purpose, showing that 70° C. wet heat for 30 minutes is very proficient.

The appendix contains elaborate charts and tables with minute details of all the experiments undertaken by the authors in the study and investigation of trench fever.

JOHN A LEPAK.

THE NERVOUS HEART. By R. M. Wilson, Captain, R. A. M. C., and John H Carroll, Major, M. C., U. S. A. Henry Frowde, Hodder and Stoughton, London. 1919. \$2.50.

In this volume, Wilson and Carroll discuss in some detail a disease known for a long time. Its origin, however, has been attributed to many greatly variable and changing causes. These authors, after a somewhat prolonged period of study, observation and experimentation, favor the neurogenic basis of causation. The whole burden of disturbances falls upon the autonomic sympathetic nervous system. From the disproportion or unbalance in action of the two sets of fibres (vagus depressor and adrenalin sympathetic) diametrically antagonistic to each other in action arises the malady known here as "The Nervous Heart", and elsewhere designated by various names, some of which are; "Neurocirculatory

Asthenia," "Soldier's Heart," Irritable Heart of the Soldier," "Irritable Heart," "Disorders Affecting the Heart," "Effort Syndrome."

The nature of this condition will be best understood, the authors state, if one keeps in mind that the human system is properly held in equilibrium by three large lakes, (the peripheral lake, the pulmonary lake, and the mesenteric lake). Furthermore, it is almost unnecessary to say that the body remains at any moment in one of two states. One of these is known as the "reaction state" or state of activity, the other as the "rest state" or time during which it is at rest. During rest the vagus depressor mechanism predominates and the "blood lakes" as a result are dilated or opened. During activity when blood is required in large amounts by the muscles and the brain, on the contrary, the "blood lakes" are partially or almost totally closed. The rapidity, success, harmony or discord of the nervous apparatus controlling these lakes gives origin to the various emotions and their intensity, quality and variation. Very frequently the resulting symptoms or signs of emotion are almost alike, that is, one may simulate another, e. g. as the presence of pallor both in fainting and in anger. And yet the pallor in each of these conditions is due to diametrically opposing nervous mechanisms. In fainting, the vagus depressor mechanism has conquered totally the "true or adrenalin sympathetic." The patient is pale, not because the vessels of the skin are contracted; on the contrary, the vessels are dilated but they are empty. Not only are the muscles and the brain bloodless, but most of the blood also has been driven out by the vagus depressor mechanism from the "peripheral and pulmonary lakes" into the "mesenteric lake." Since there is little blood present in the skin, muscles and brain, the patient is pale, weak and faints. During anger pallor also appears, but this pallor is a result of the "true or adrenalin sympathetic" domination. Here the pallor is due to the constriction of the blood vessels. The blood lakes are narrowed, diminished in size or closed; and the blood is forced to the muscles and the brain, hence the individual's courage increases, strength, vigor and power multiply and simple confidence may be transformed into a daring audacity. Inability to mobilize the blood from the "lakes" to the muscles and the brain gives fear, anxiety and distress, their severity depending on the extent of failure. The more powerful the action of the vagus depressor, the more powerfully will "adrenalin sympathetic" try to react by equalizing or better yet, by subordinating its opponents. And thus ones imagination can only tell what kind of

emotional outbursts will be the outcome from such a complex action of forces. Vagus depressor predominance means fear, and adrenalin sympathetic predominance, confidence. How many other emotions with their variations can there be? These two, each at the extreme end of the scale?

The over-excitability and instability of this clearly understood complex action of the autonomic sympathetic nervous system, the authors propose is due to several factors of which the most prominent are:

1. Toxins, endogenous or exogenous.
2. Environment, unpleasant and disagreeable.
3. Infections, especially rheumatism and trench fever, but any infection will do under favorable circumstances. Numerous examples and experiments have been cited to prove these contentions. Clinically, the disturbance of this nervous mechanism has given as the most common symptoms; slight temperature, a variable pulse, breathlessness, giddiness, precordial pain, blushing, flushing, weakness, excitement, sweating, tremulousness, palpitation, fatigue and drowsiness.

The prognosis of such cases will depend entirely on the removable or irremovable character of the causative factors, and furthermore, upon the severity of the symptoms and the patients co-operation in steadfastly resisting any backward drawing reactions.

The treatment of nervous heart has been divided by the authors into three parts.

1. Removal of the cause.
2. Palliative treatment. This consists essentially in lowering the irritability of the vagus depressor and increasing the response of the adrenalin sympathetic, by removing unpleasant circumstances.
3. Tonic of thyroid extract, one to ten grains daily.

In conclusion, it must be remembered that the past medical literature has expounded this very same disorder:

1. On the chemical basis, as an increase or decrease of certain salts.
2. On the endocrine system as a disparity in secretion of the internal secretory glands.
3. On the "inferior instability" of the nervous system usually considered hereditary. The authors have practically combined all the above theories in their explanation of the nervous heart in such a manner that the book is not only pleasant reading and interesting, but also most logical and convincing.

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